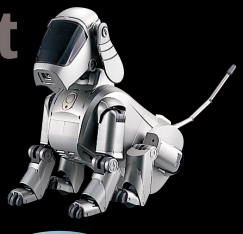
SONY

4-645-302-**11**(1)

Entertainment Robot



ERS-111

MEMORY STICK

Operation Manual

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Entertainment Robot
“AIBO” ERS-111

Operation Manual

“OPEN-R” is the standard interface for the entertainment robot system that Sony is actively promoting. This interface expands the capability of the entertainment robot through a flexible combination of hardware and interchangeable software to suit various applications.
“AIBO” ERS-111 conforms to the OPEN-R version 1 (software specifications).

“AIBO” is the name given to the Sony entertainment robot. Developed to encourage human and robot interaction, AIBO creates and introduces you to new pleasures and lifestyles.

The name “AIBO” is coined from the words “A.I. (Artificial Intelligence),” “eye” and “robot.” In Japanese, the word “aibou” means “partner” or “pal.”

Safety Information

Owner's Record

The model number and serial number are located on the bottom of the station. Record the serial number in the space provided here.
Refer to the model and serial number when you call your Sony AIBO Customer Link.
Model Number: ERS-111
Serial Number: _____

WARNING

- To prevent fire or shock hazard, do not expose the robot to rain or moisture.
- To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only. (Contact the AIBO Customer Link.)
- Parents—Periodically examine the transformer for conditions that may result in the risk of fire, electric shock, or injury to persons (such as damage to the cords, blades, housing) and that in the event of such conditions, the transformer should not be used until properly replaced.
- Not recommended for children under 8 years.
- Sound controller—Do not mix old and new batteries.
- Do not mix alkaline, standard (carbon-zinc) or rechargeable (nickel-cadmium) batteries.

DISPOSAL OF LITHIUM ION BATTERY

You can return your unwanted lithium ion batteries to your nearest Sony Service Center.

Note
In some areas the disposal of lithium ion Batteries in household or business trash may be prohibited.

For the Sony AIBO Customer Link you call 1-800-427-2988 in the United States or contact via email at support@aibosony.com .

! Do not handle damaged or leaking lithium ion batteries.

! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacture. Discard used batteries according to the manufacturer's instructions.

! The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 140 °F (60 °C) or incinerate. Dispose of used battery promptly. Keep away from children.

Regulatory Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one more the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio / TV technician for help.
- You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.
- The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

How to use this instruction manual

Thank you for purchasing “AIBO” ERS-111. This manual will assist you in building your new relationship with this entertainment robot. Before operating AIBO, please thoroughly read this manual and retain it for future reference.

Getting started

To get AIBO to move

See “Getting started” on page 27. Preparation, basic operation and what you should do after playing are described.

To enjoy AIBO’s autonomous activity, its performances or AIBO in a game

See respectively, “Living with AIBO” on page 49, “Enjoying AIBO’s performances” on page 62 and “Playing games” on page 66.

Understanding AIBO for a fulfilling partnership

To understand AIBO in detail

See “Introduction to ERS-111 “AIBO”” on page 12. You can find out exactly what kind of robot AIBO is.

To communicate with AIBO

See “Features of AIBO” on page 13, “Capabilities of the sound controller” on page 16, “Communicating via touch sensor” on page 52 and “Communicating via objects (the ball)” on page 52. You can understand how to communicate with AIBO through its senses of touch, vision and hearing.

To understand the activity pattern of AIBO

See “AIBO’s motion modes” on page 44. You will be able to find out about AIBO’s other possibilities than as an autonomous robot.

Getting to know the mind of autonomous AIBO

See “A psychological peek into your robot” on page 54. You can understand principle of AIBO’s activity in the autonomous mode.

Additional information

To charge AIBO

See “Charging the battery pack” on page 74.

To search for information

See “List of commands” on page 91, “List of lights / indicators” on page 95 and “Index” on page 104.

If you wonder, “Is it broken?”

See “Troubleshooting” on page 86.

ERS-110 is used for the illustration and photos in this manual.

“AIBO,” the AIBO logo, “OPEN-R” and the OPEN-R logo are trademarks of Sony Corporation.

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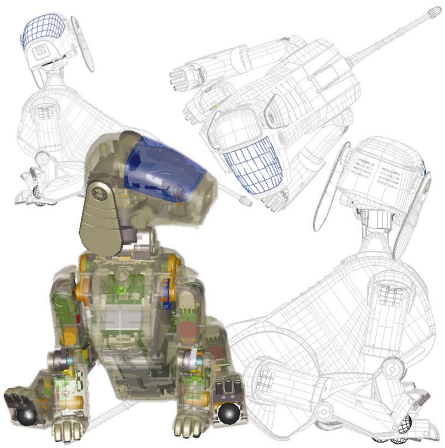
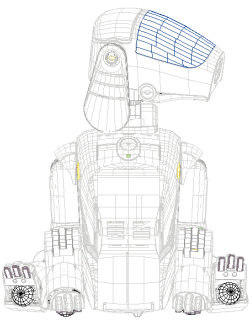
Chapter 1

Meet AIBO

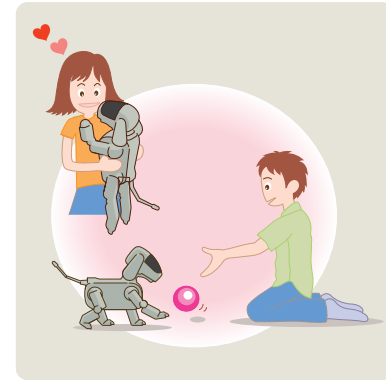
This chapter introduces you to the entertainment robot “AIBO” ERS-111 and its supplied accessories.





Introduction to “AIBO” ERS-111

“AIBO” ERS-111 is Sony’s robot designed as a new kind of entertainment—home entertainment. Utilizing advanced technology, this “entertainment robot” expands on the features of robots which have existed only in the realm of science fiction or in special laboratories.
There have been other robots for entertainment, such as battling robots operated by remote control, stuffed animal robots that giggle when tickled, and robots controlled by computer. However, the greatest difference between those robots and AIBO is that AIBO is an “autonomous” robot.



What is an autonomous robot?

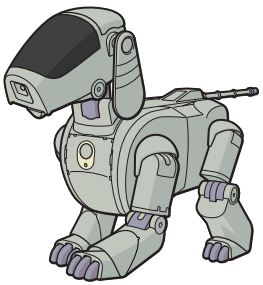
AIBO was created to encourage human and robot coexistence. It can move around on its own, as it is equipped with all the necessary hardware such as the brain, sensors, and power switch. In addition, its software enables AIBO to have emotions, instincts, learning ability and capacity to mature. Therefore, it requires no external control or human instruction for movement. AIBO is a robot, but a one which lives at home and communicates with people, expressing emotions, learning and growing up, and acting under its own judgement—this is an “autonomous robot.”
Each AIBO turns out differently, as its behavioral patterns continuously change. This is because AIBO acts based upon its feelings and instincts, then learns from the result of experience, all the while maturing into a full-fledged robot.
When in a bad mood, AIBO will not listen to what people order, whereas in a good mood, it may entertain you with its favorite performance.
The key to get along with AIBO is to understand its autonomous nature, and help it learn and grow.

Features of AIBO

To realize AIBO's greatest feature, the autonomous behavior, AIBO has various functions and capabilities. There are also other ways to enjoy AIBO other than as an autonomous robot.

A four-legged robot

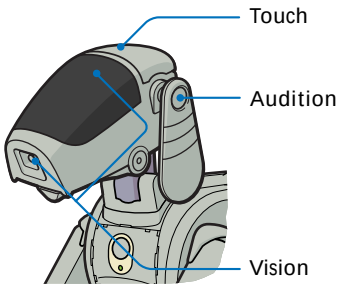
To comfortably coexist with people, AIBO was designed with the four-legged appearance of a dog or cat, animals which usually have long-term, friendly relationships with people. It walks on four legs which are jointed and moves them to sit or lie down. It also uses the legs to express its emotions or entertain you with its favorite performance.



Various senses

AIBO has sensors corresponding to human senses, which allow it to perceive its environments and communicate with people.

- Touch: AIBO's head is the sensor for receiving personal contact by touch.
- Audition: AIBO receives sounds through a stereo microphone. AIBO has a perfect pitch and responds to certain combinations of musical tones (commands) that deliver instructions to it.
- Vision: AIBO has a built-in color camera and distance sensor which are used to look for its favorite colors or to avoid obstacles.
- Balance: Using its acceleration sensor, AIBO recognizes when it falls.

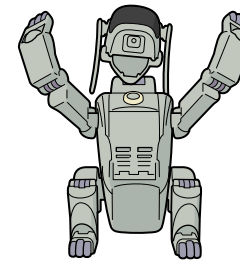


Communicating with people

AIBO speaks to us by way of musical tones (robot language). It also expresses its joy or desires through body language. The eye lights are used to express emotions or give a yes or no response. You can also initiate communication by presenting a ball to AIBO. When approving or scolding AIBO, you can pat or hit the touch sensor on its head.

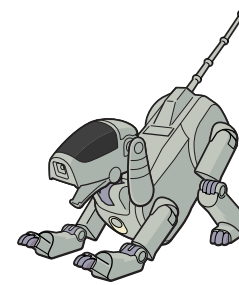
Natural motions

A total of 18 motors (which is technically called “18 degrees of freedom”) enables AIBO to move in a natural, smooth manner. All the motors are cooperatively controlled and allow not only basic movements like walking, sitting or lying down, but also movements like looking around, tilting its head, or waving its paws. AIBO can use more complicated body language, and will even try to show off when in a good mood.



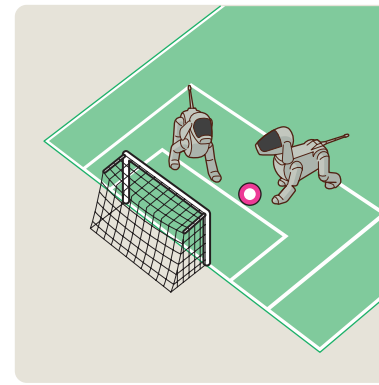
AIBO performance

Other than playing with it as an autonomous robot, you can enjoy pre-programmed performances by switching it to the performance mode. The performances prepared for AIBO can be changed, and new original motions can be added with a separate software (not supplied) called ERF-511 AIBO Performer Kit. This software can enhance AIBO’s existing movements, as well as help you create original robot motions.



Playing games

Once switched to the game mode, AIBO loses its autonomy and reacts solely to human commands. In addition to simple movements, such as moving back and forth and changing directions, it can kick, show joy of winning, display sorrow after losing a game, hold something in its mouth and let it go. Using these functions, AIBO can play games such as robot soccer.

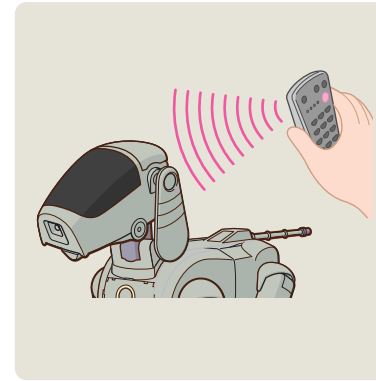


A robot in your home

There are still endless possibilities for AIBO and you as partners. From the time of its birth, as it continues to live a life in touch with humans, it will develop as not only a robot, but a companion. We hope you enjoy this new kind of entertainment—home entertainment that is born the moment you decide to begin a life involving AIBO.

Capabilities of the sound controller

AIBO has perfect pitch and can distinguish musical tones. This feature makes it possible to send commands to AIBO through combinations of certain musical tones. This means you can even control AIBO through a musical instrument or by whistling, as long as the combination of notes and pitch are correct. However, it takes some practice to hit just the right sounds that AIBO will recognize. Therefore, a sound controller, which makes it easy to produce sounds AIBO recognizes, is included. This section introduces you to commands and sound controller features. For details on how to use it, see chapters 2, 4 and 5.



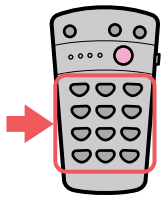
Commands

Commands are combinations of specific musical tones. Various commands are assigned to correspond to different note combinations. Use these commands to change AIBO's motion modes (e.g., changing from the autonomous mode to the remote-control mode), or to enter a command for an action in the game mode or the performance mode.
Each command consists of a combination of three individual tones all in the same octave (from C to B) such as "C-D-E" and "F-E-C." AIBO recognizes a total of approximately 40 different commands.

Sound controller features

Sound controller (supplied) has three user-friendly features, including the ability to switch the command transmission method.

(1) Three types of operating commands

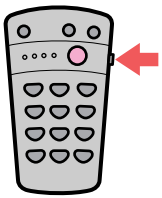


Three types of operating commands are provided, geared to different types of play. As described in the following, the functions assigned to the number / symbol buttons (command buttons) change according to the operating command.

- Numeric commands: The entered combination of numbers (command number) is sent as a command such as “Stand up” or “Sit down.”
- Single sound commands: Like a musical instrument, individual musical tones are output by the sound controller when the command buttons are pressed. This is useful when you want to hear the tones as you send a command.
- Game commands: Game-only commands such as “Move forward” are assigned to the command buttons. This is useful when playing games such as soccer.

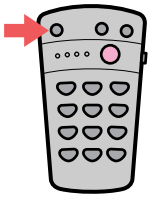
In this operation manual, most of the commands sending procedures are written as numeric commands. When sending commands in the single sound system, refer to “List of commands” on page 91.

(2) Easy switching between command types



The same commands can be sent in two different octaves (command type A and B) with the sound controller. This is useful when there are two AIBOs involved in a game (see page 69), where commands must be distinguished for each robot. You can set the command type using the switch on the side of the sound controller. For details, see “Index to parts and controls” on page 24.

(3) Auto OFF function



You can turn the sound controller on by pressing the “C” button. The power turns off automatically if the sound controller is not operated for three minutes.

Unpacking

Check to make sure that you have the following items:

AIBO

Entertainment Robot “AIBO” ERS-111

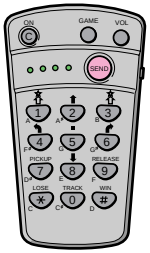
Supplied accessories

Station

The station is used to charge AIBO’s batteries, and also serves as AIBO’s home base.

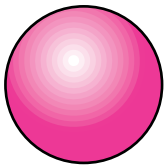
Sound controller

You can control AIBO by sending commands (musical tones).



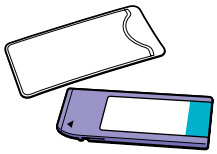
Ball

This is AIBO's special toy. You can also use this for robot soccer.



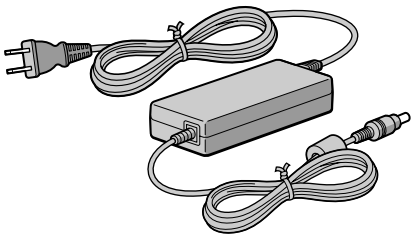
"Memory Stick"(8MB, ERA-111M) and case

The "Memory Stick" stores AIBO-ware (AIBO's operating program). You can also save the data of AIBO's activities with it.



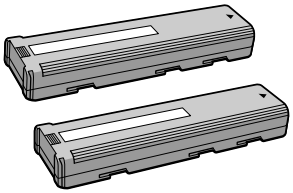
AC adapter

The AC adapter allows AIBO to receive power from an AC power supply when AIBO is mounted on the station. Always keep the station and AC adapter connected to the AC power supply.

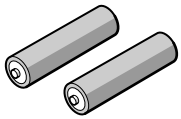


AIBO power supply: ERA-110B lithium ion battery pack (2)

AIBO operates only with the ERA-110B battery pack.



Remote controller power: Size AA (R6) battery (2)



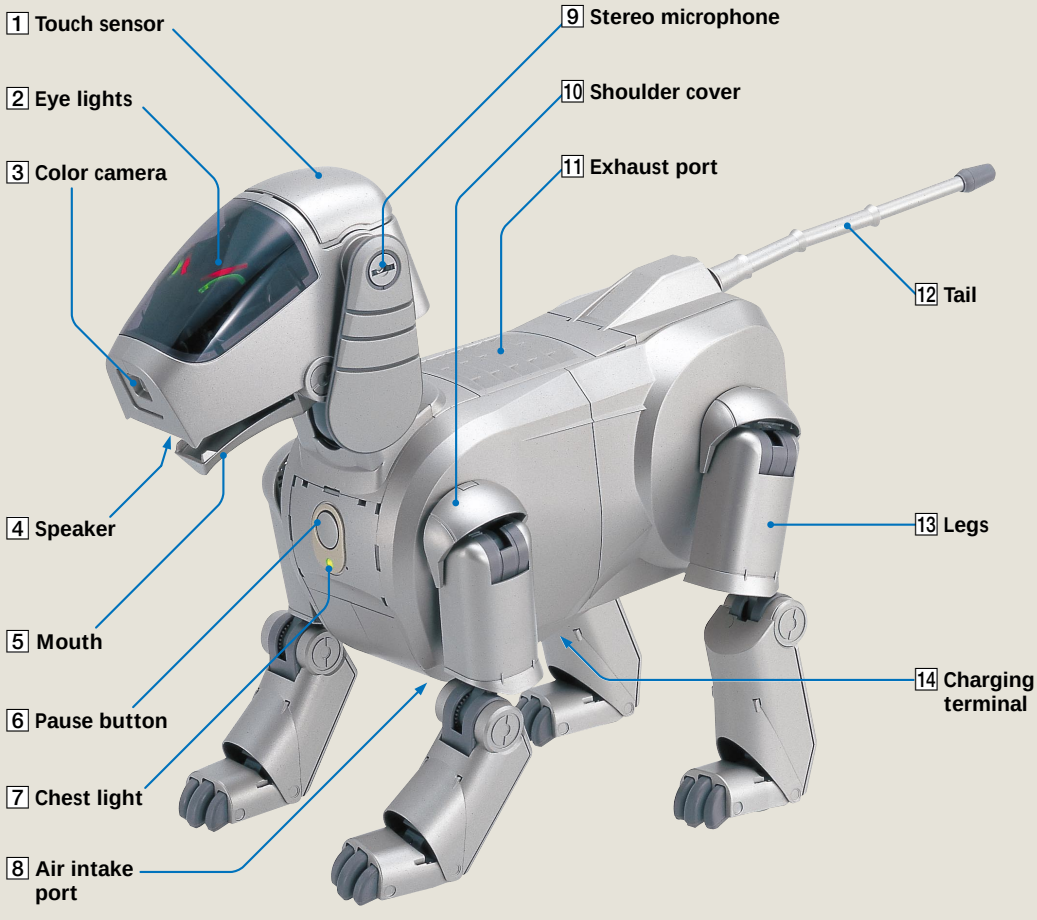
Documentation

Operation manual
"Raising AIBO – the handbook"
Certificate of Authenticity

Index to parts and controls

AIBO

Refer to the pages indicated in parentheses ( ) for relating information.



1 Touch sensor (52)
Allows AIBO to develop tactile relations when a person taps or pets it.

2 Eye lights (59, 95)
Light up in red or green, and indicate AIBO's emotional state or response to personal contact.

3 Color camera (52)
Allows AIBO to search objects and recognize the color, shape and its movement. AIBO can measure the distance to an object and avoid obstacles using this CCD color camera and the built-in distance sensor.

4 Speaker
Emits combinations of musical tones (robot languages) and sound effects.

5 Mouth (72)
Holds objects, and also indicates AIBO's emotional state.

6 Pause button (28, 32)
Press this button to pause AIBO when changing batteries, if AIBO has an internal trouble or if your hand gets caught between its joints.

7 Chest light (59, 96)
Indicates AIBO's state of activity.

8 Air intake port
Takes air into AIBO to prevent internal heat buildup.

9 Stereo microphone (35)
Gathers sound and allows AIBO to distinguish musical tones, and its direction.

10 Shoulder cover
Protects AIBO's joints. If your fingers get caught in the cover, it automatically opens.

11 Exhaust port
Emits air from the internal cooling device.

12 Tail
Shows AIBO's emotional state by wagging.

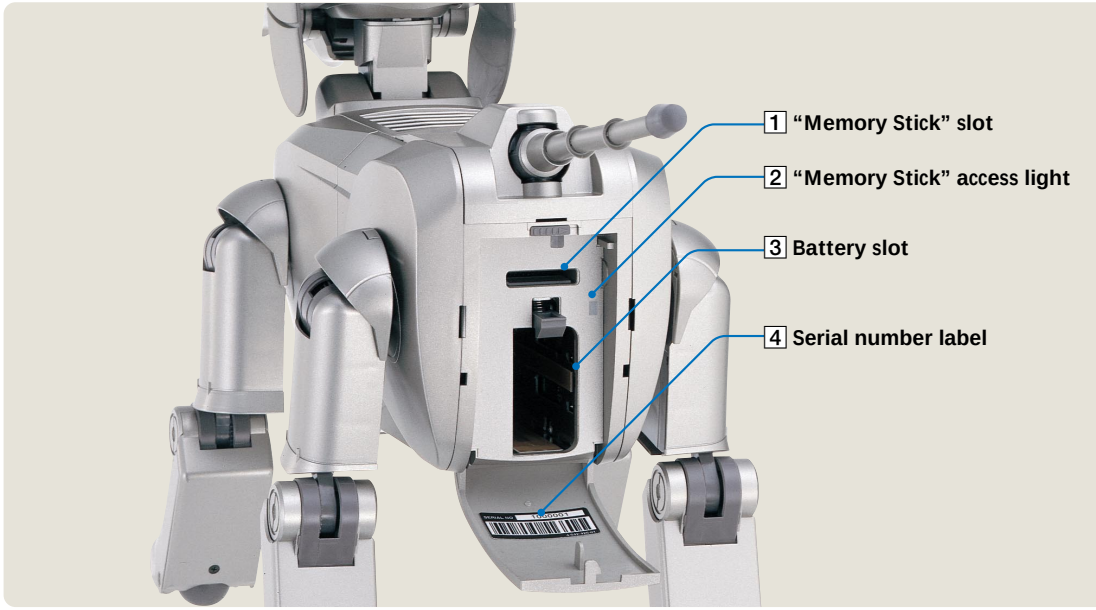
13 Legs
Allow AIBO to walk and also indicate AIBO's emotional state.

14 Charging terminal
Contacts with that of the station when charging the battery.

Notes

- Do not put a sticker on the color camera or head cover.
- Be sure to keep the shoulder cover closed except in case of an emergency.
- Do not put a sticker on the movable parts or insert anything between them. Doing so may obstruct AIBO's movement.
- Do not block the air intake port or exhaust port with your hand or by putting a sticker on them. Doing so may cause internal heat buildup.
- Do not touch the charging terminal directly with your hand. Doing so may soil the terminal and cause poor contact.
- Pick up AIBO by the body, not by its extremities (see page 29).
- Do not force the joints or other movable parts.

Rear of AIBO



1 “Memory Stick” slot (29)

2 “Memory Stick” access light (96)
Lights up when loading/saving the data of AIBO’s activities in the “Memory Stick.”

3 Battery slot (29, 77)

4 Serial number label
The label with your AIBO’s serial number.

Station

Refer to the pages indicated in parentheses ( ) for relating information.

1 POWER indicator (30, 74, 97)
Lights up in green when the station is turned on.

2 MAIN indicator (75, 97)
Lights up / flashes in orange (when AIBO is charging) or green (when AIBO is fully charged), indicating the charging condition of AIBO.

3 SUB indicator (75, 97)
Lights up / flashes in orange (when battery is charging) or green (when battery is fully charged), indicating the charging condition of the extra battery pack.

4 Extra battery slot (75)

5 AC IN power supply connector (30)
Connects the AC adapter.

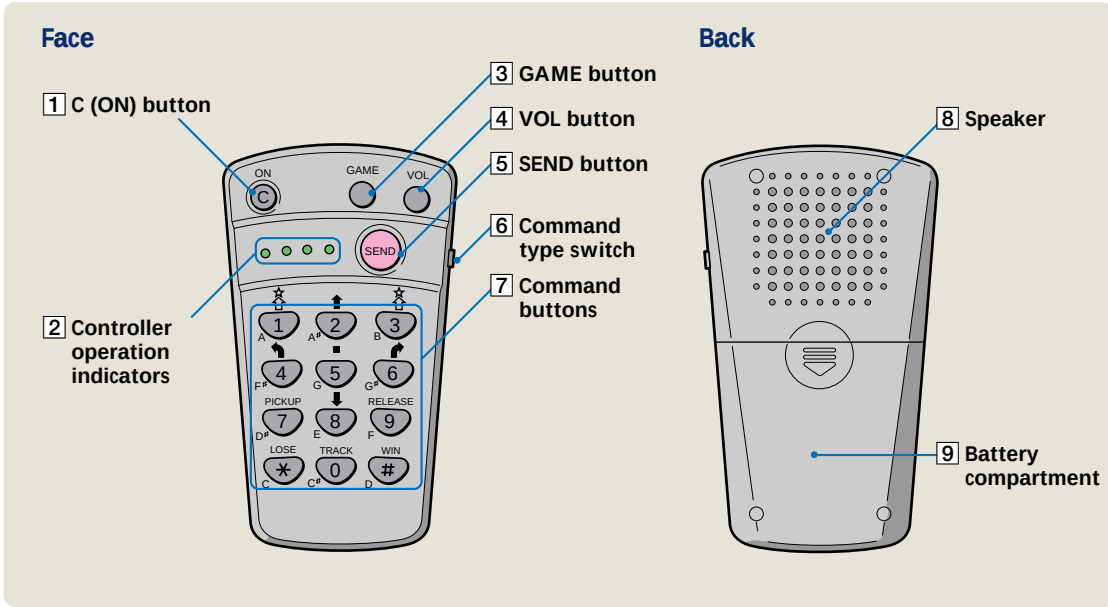
6 Charging terminal
A terminal for charging AIBO on the station.

Note

Do not touch the charging terminal directly with your hand. Doing so may soil the terminal and cause poor contact.

Sound controller

Refer to the pages indicated in parentheses ( ) for relating information.



1 C (ON) button (34)

Press this button to turn the sound controller on or to cancel the entering of the numeric command. The power turns off automatically if the sound controller is not operated for three minutes.

2 Controller operation indicators (34, 98)

Four lights light up in green or orange (the color depends on the command type), and indicate the operating commands of the sound controller or the state of entering / sending commands.

3 GAME button (66)

When using numeric commands or single sound commands, press this button to set the sound controller to emit game commands and also to set AIBO to the game mode. When you press this button once more, the operating command type is turned to the previous one and AIBO resumes the autonomous mode.

4 VOL button

Press this button to adjust the volume of the sound controller. You can raise and lower the volume in three levels.

5 SEND button (35)

When set for numeric commands, enter the command number and press this button to send a command. When you press this button without entering the command number, the same command as entered just before is sent once more.

6 Command type switch (17, 34)

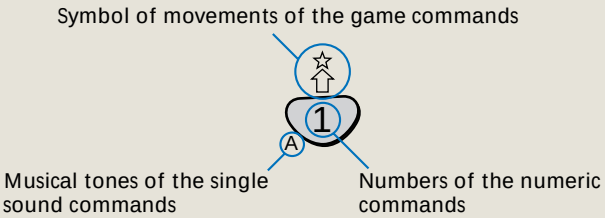
Selects the command type of the sound controller. Command type A corresponds to the lower octave (C5 to B5: 523.25 - 987.76 Hz), and command type B corresponds to the higher octave (C6 to B6: 1046.5 - 1975.53 Hz).

A: Command type A / numeric commands
B: Command type B / numeric commands
L: Command type A / single sound commands
H: Command type B / single sound commands

7 Command buttons (16, 91, 94)

Press these buttons to enter or send commands. The functions assigned to these buttons change according to the operating command type.

Printed symbols of the command button



8 Speaker (35)

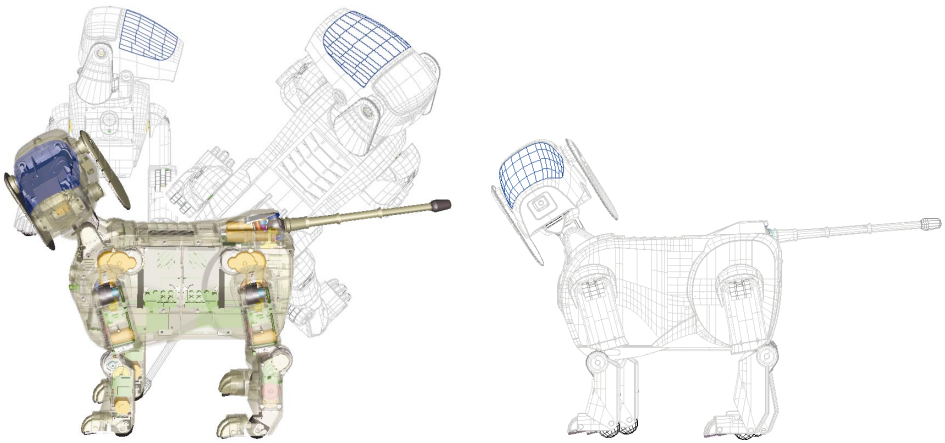
Emits the musical tones.

9 Battery compartment (31)

Chapter 2

Getting started

This chapter introduces you to the basic features of AIBO—The autonomous mode and the remote-control mode by using the sound controller. After playing with AIBO, place it on the station.



Preparation

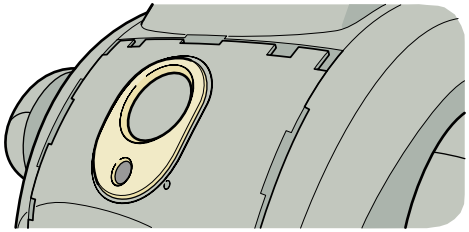
First of all, get AIBO ready to move.

Preparing AIBO

Insert the “Memory Stick” and install the battery pack into AIBO.
AIBO has been set to the pause mode at the factory (the pause button on its chest is pressed down).
The battery pack is not fully charged at the factory. With normal use, the battery pack should last about half an hour. For details on charging the battery pack, see page 74.

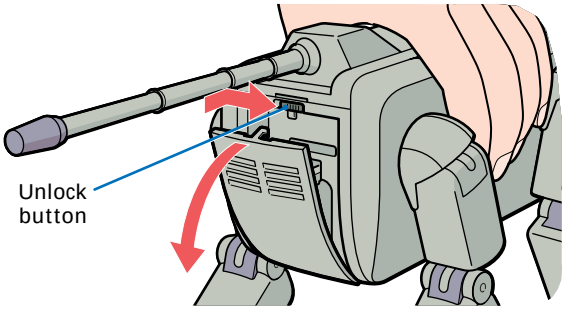
1 **Make sure that the pause button on the chest is pressed down.**

The button is pressed down about 1 mm.



2 **Hold securely by the body and open the rear cover.**

Slide the unlock button to open the cover.

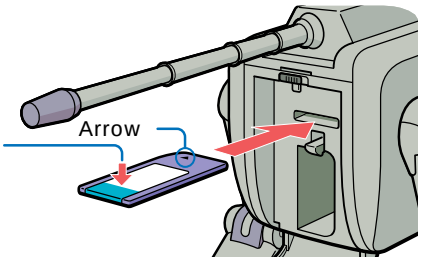


Notes

- Pick up AIBO by the body, not by its extremities.
- Do not touch the charging terminal on the underside of AIBO directly with your hand. Doing so may soil the terminal and cause poor contact.

3 Insert the supplied “Memory Stick” arrow-wise with the label side up.

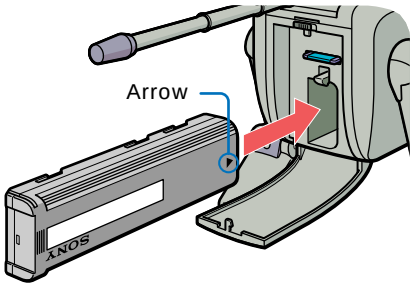
Insert so that only the blue colored part of the label is visible.



Note

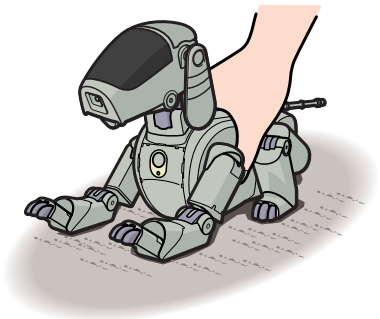
Do not set the safety switch of the “Memory Stick” to “LOCK” (see page 83). If you do so, you cannot save the data of AIBO’s learning and maturation process.

4 Insert the battery pack arrow-wise until it clicks.



5 Close the rear cover, then place AIBO on the floor as shown below.

Place it on a flat surface that is not too slippery, such as a carpet with a short nap. Choose a quiet place so that AIBO can hear the musical tones of the controller.



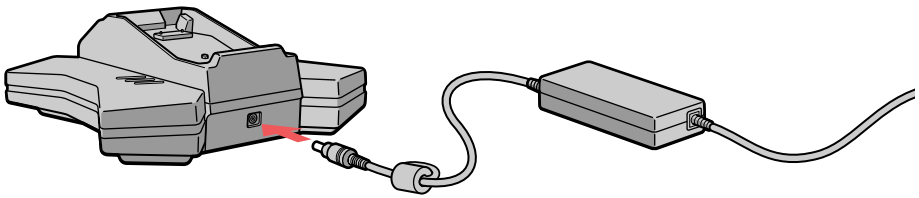
Note

Be sure to place AIBO on the floor as shown above. This will prevent AIBO from moving unexpectedly and being damaged when you press and release the pause button to start AIBO.

Preparing the station

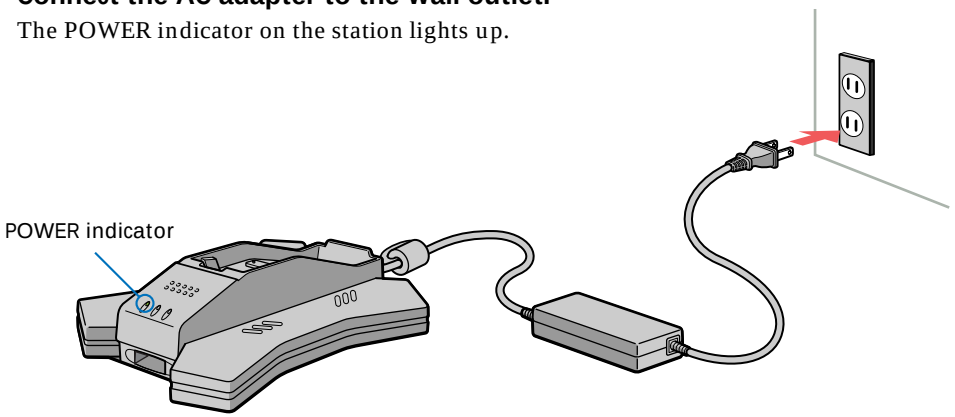
The station should always be connected to the wall outlet with the AC adapter.

1 **Connect the AC adapter to the station.**



2 **Connect the AC adapter to the wall outlet.**

The POWER indicator on the station lights up.



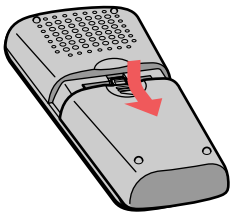
Note

When AIBO is on the station, do not place obstacles to its movement.

Preparing the sound controller

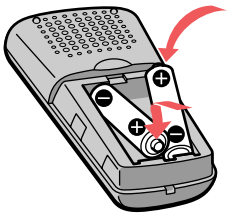
Insert Alkaline batteries into the sound controller.

1 **Open the battery cover.**



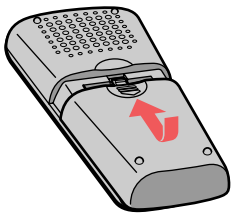
2 **Insert two size AA Alkaline batteries.**

Matching the + and - on the batteries to the diagram inside the battery compartment, insert the negative (-) end first.



3 **Close the battery cover.**

When you insert the batteries, the sound controller automatically turns on and the light lights up without pressing the ON button.
The power turns off automatically if the sound controller is not operated for three minutes.



Battery life

About 3 months, depending on how much you use the sound controller. When the volume of the sound controller decreases or the sound controller no longer operates AIBO, replace both batteries with new ones.

Playing for the first time

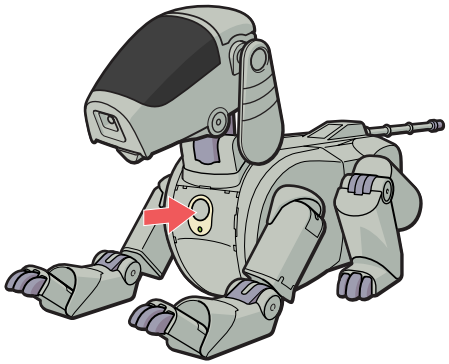
First, enjoy watching AIBO moving freely. Then make it pose by using the sound controller, and place it on the station.

Enjoying AIBO's autonomous activity

AIBO, an autonomous robot, learns and matures from experience. When you purchase AIBO, think of it as having just been born.
AIBO first moves awkwardly and hardly gets up, but as it matures, it will be able to move in more various ways.
See the "Raising AIBO – the handbook" for more information on its growth.

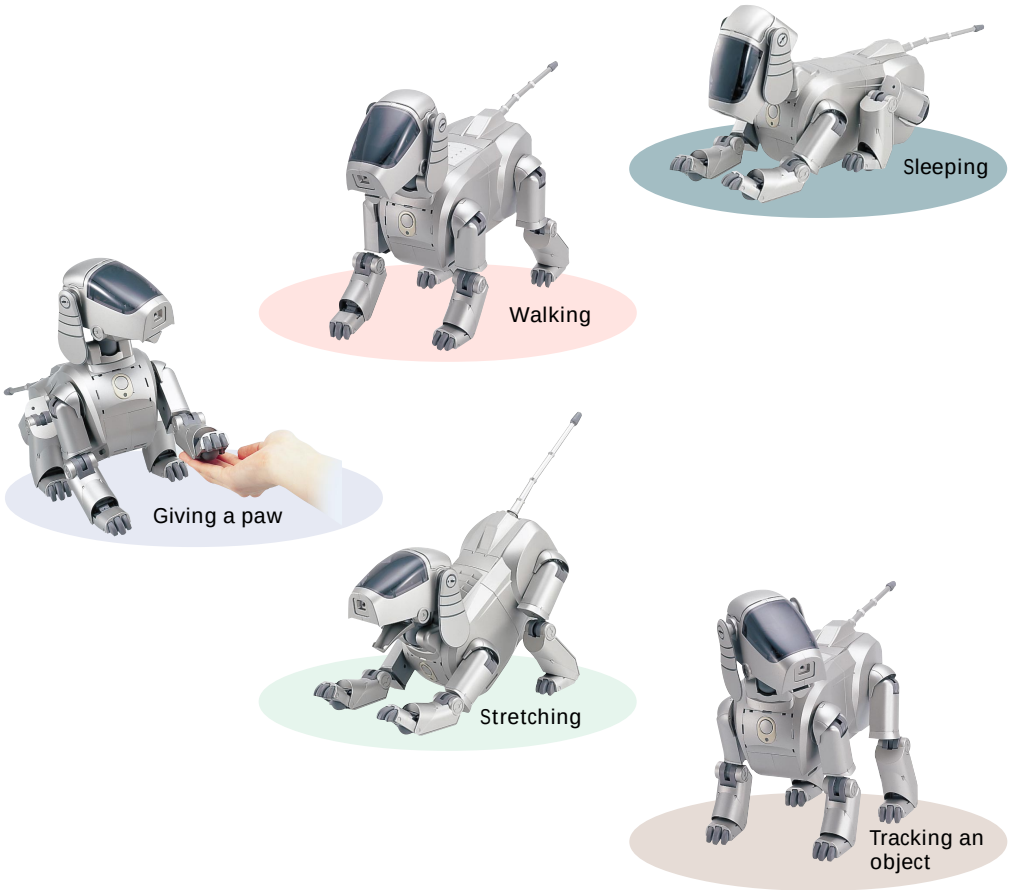
Push and release the pause button on AIBO's chest.

Pause is canceled. AIBO starts to make an electronic sound. Moving its head and tail, AIBO loads the data of its activities from the "Memory Stick." Leave AIBO as it is until loading is done.



Leave AIBO as it is, and enjoy its autonomous activities.

An autonomous robot is capable of moving about on its own without human action. For example, it will look around, lie down or emit tonal phrases. Sometimes when it is tired, it will start sleeping, or will not budge when in a bad mood. These various and free actions are based on its emotions, instincts, learning ability and capacity to mature. Such actions are the characteristic features of an autonomous robot.

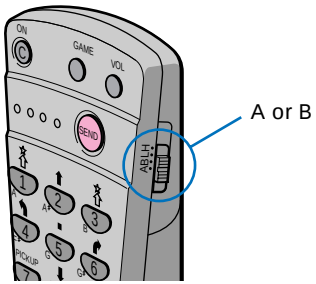


Performing

You can ask AIBO for a particular performance by using the sound controller. Be sure to use the sound controller in a quiet place so that AIBO can hear the musical tones of the controller.

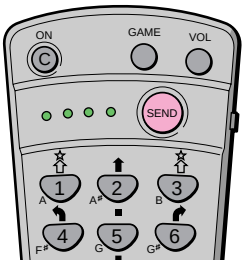
1 Make sure the switch is set to A or B.

With this setting, you can use the controller with the numeric commands (see pages 17, 91).



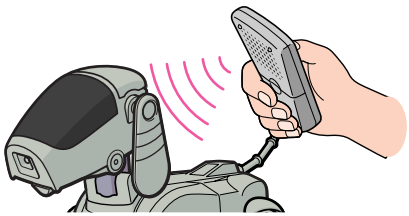
2 Press the C button to turn on the sound controller.

When the power is on, all the controller lights light up in green (type A) or orange (type B).

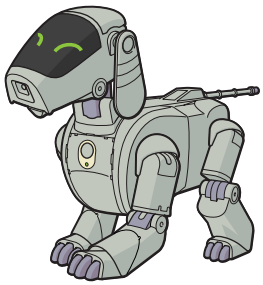


3 **Press the buttons in order, as shown below.**

AIBO will follow the instructions sent by the sound controller.
When using the sound controller, be sure to hold the speaker towards AIBO without covering the speaker with your hands.



4 **Press the buttons in order, as shown below.**



If AIBO does not respond to the tonal commands

Check how you are pointing AIBO's stereo microphone (see page 20), then repeat from step 3 above.
AIBO does not accept commands while it emits sounds.

5 **Tap AIBO's touch sensor or wave your hand in front of its eye lights.**

AIBO will start performing for you.

To play with AIBO more

See page 44 and choose other motion modes.

After playing with AIBO

Place AIBO on the station (See page 37).

To pause AIBO immediately

Press the pause button on the chest. To reactivate AIBO, place it on the floor in the proper position (see step 5 on page 29) and press the pause button once more.

When the battery runs out

When AIBO is low on batteries, it will request to be charged by sounding a message in robot language, and will show the “charging posture” (see page 38) on its own, then it will shut itself off (chest light is off). Place it on the station or replace the battery pack (see page 76).
As AIBO is already in the “charging posture,” place it on the station as it is (see step 5 on page 38.)

To replace the battery

Be sure to press the pause button. This will prevent AIBO from suddenly moving immediately after installing a new battery pack.
Before removing the battery pack, make sure that the access light beside the “Memory Stick” is off.

After playing

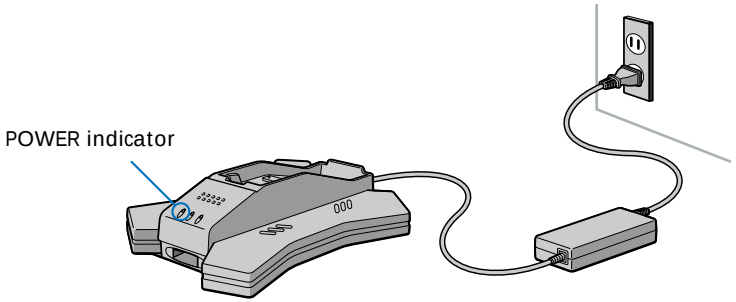
AIBO lives most of its life on the station, and also charges its battery there. After playing with AIBO, place it on the station. (The station should always be connected to the wall outlet with the AC adapter.) Enjoy AIBO moving on the station if you place it on the station without pressing the pause button. AIBO also sleeps and wakes up on the station.

Placing AIBO on the station

When placing AIBO on the station, be sure to set it to the “charging posture.” AIBO lies down on its own. If AIBO is sleeping, gently shake it awake (see page 41), then set it in the “charging posture.”
When AIBO runs out of battery power and shows the “charging posture” on its own, do steps 1 and 5.

1 **Make sure the station is connected to the wall outlet with the AC adapter.**

The POWER indicator on the station lights up.

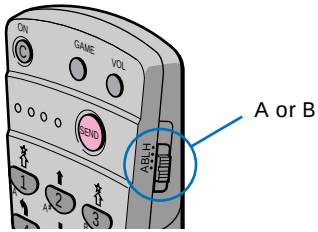


Note

When AIBO is on the station, do not place obstacles to its movement.

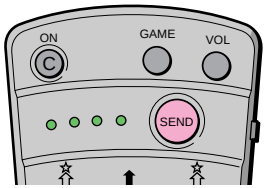
2 **Make sure the switch is set to A or B.**

With this setting, you can use the controller with the numeric commands (see page 15).



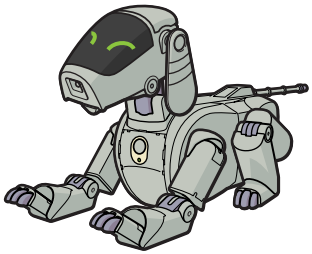
3 Make sure the sound controller is turned on.

When the power is on, all the controller lights light up.
To turn the power on, press the Ⓒ button.



4 Press the buttons in order, as shown below.

AIBO lies down.

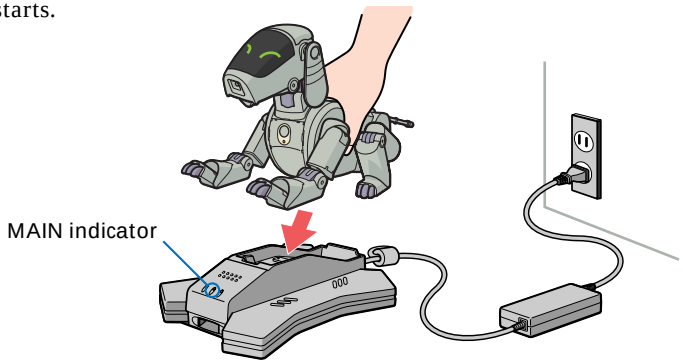


If AIBO does not respond to commands

When set for the numeric commands, press “8”→“0”→“SEND” to match AIBO’s command type (A, B) to that of the sound controller.
AIBO does not accept commands while it emits sounds.

5 Place AIBO on the station.

The MAIN indicator on the station lights up in orange, and the charging starts.



Note

If the MAIN indicator flashes, the connectors of AIBO and the station may not be in proper contact with each other. Place AIBO on the station again.

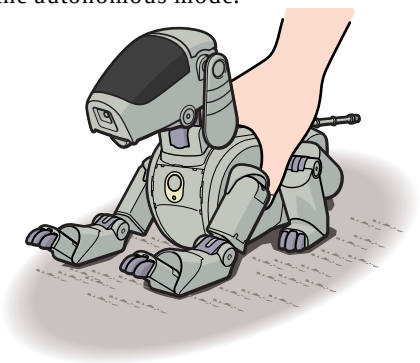
Note

When you place AIBO on the station after it has run out of power and shown the “charging posture” on its own, it will not wake up even after it is charged. In this case, press the pause button or pick up AIBO from the station (see page 41).

Taking AIBO off the station

Pick it up from the station, then place it on the floor in the manner shown below.

AIBO starts to move in the autonomous mode.



When not playing with AIBO

This section describes what you should do when you will not be playing with AIBO for some time.

When you are going out / going to sleep

When not playing with AIBO for a few hours, set it to the sleep mode. The battery discharges slightly while AIBO is sleeping, so place AIBO on the station to keep the battery from running out.

There are two types of sleep modes.

- Sleep 8: AIBO will sleep for eight hours, and automatically transfer to the autonomous mode and wake up. You can also wake it by gently shaking it.
- Sleep: AIBO keeps on sleeping until you wake it up.

Press the buttons as listed below to set AIBO to the sleep mode.

AIBO will bend its head and goes to sleep.

Sleep mode	Press	AIBO sleeps
Sleep 8	8 → 8 → SEND	For eight hours
Sleep	8 → 9 → SEND	Until you wake it up

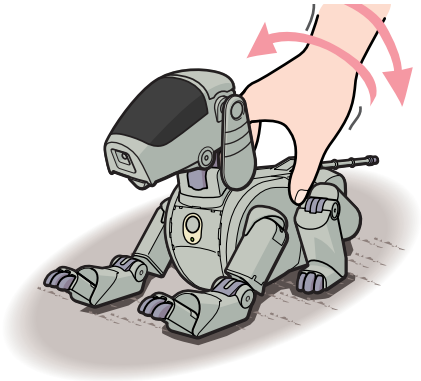
Sleeping AIBO:

On the station

On the floor

To wake the sleeping AIBO

When AIBO is on the station, pick it up from the station. When it is on the floor, gently shake it awake.



To send commands while AIBO is sleeping

AIBO will not listen to any commands while it is sleeping. Gently wake it up , then send the command.

If AIBO does not accept the command “Sleep”

When set for the numeric commands, press “8”→“0”→“SEND” to match the command type of AIBO to the same one as that of the sound controller.
AIBO does not accept commands while it emits sounds.

To place the sleeping AIBO on the station

Shake it awake, then set it to the “charging posture” and place it on the station (see step 4 on page 38.)

Notes

- Follow the precautions below so that your fingers do not get caught between AIBO’s joints.
  - Do not touch AIBO other than in case of shaking it awake.
  - When you press down the pause button while AIBO is sleeping on the floor (not on the station), be sure it is in the proper position (see step 5 on page 29) before you release the pause button to cancel pause.
- Do not shake AIBO on the station as that may damage AIBO or the station.

When going out for long

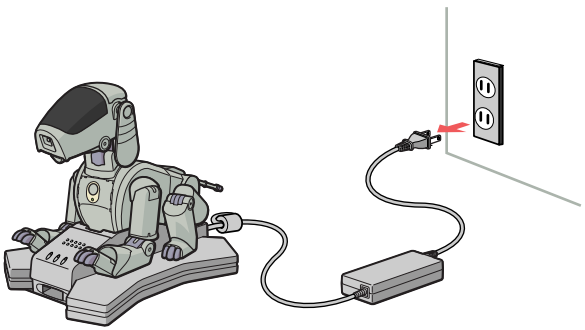
When you are going out for a long time, stop AIBO completely and disconnect the station from the wall outlet.

1 **Place AIBO on the station (see page 37).**

2 **Press the pause button on the chest.**

AIBO starts saving data of its maturity level and activities on the "Memory Stick." AIBO's chest light flashes and the access light beside the "Memory Stick" slot lights up while saving.

3 **Unplug the AC adapter from the wall outlet.**



When you return

Connect the AC adapter to the wall outlet, then press the pause button on AIBO's chest to cancel the pause mode.

Note

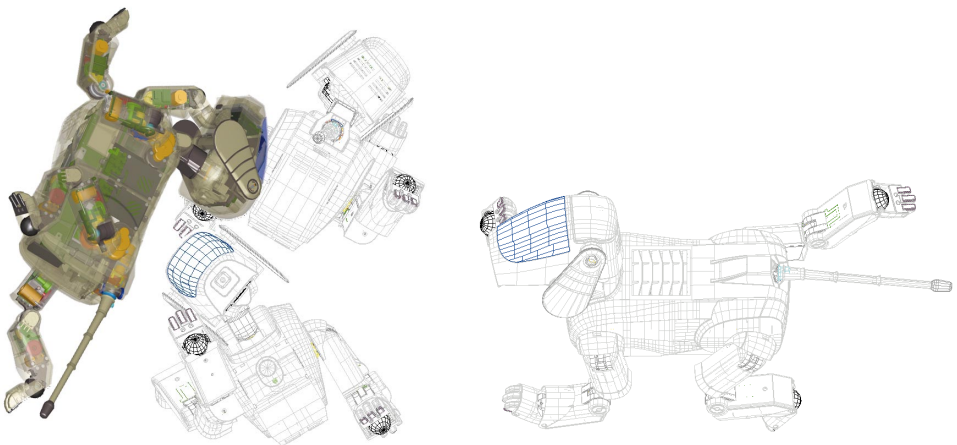
Do not remove the "Memory Stick" or the battery pack while the chest light is flashing and the access light lights up (see page 76) . Doing so may cause damage.

Chapter 3

AIBO's four modes

— How to interact with AIBO

This chapter describes AIBO's four different modes of activity.



AIBO's motion modes

The motion mode means AIBO's state of activity. The AIBO in motion is usually in the autonomous mode acting on its own free will. When you change the motion mode, you can control how AIBO moves by using the sound controller (remote-control mode) or can deliberately stop its activity (sleep mode).
Such modes are indicated by AIBO's eye lights (see page 95) and can be changed with the sound controller.

About each motion mode

The following are quick notes on each motion mode.

Autonomous mode

AIBO acts autonomously. Its emotions, instincts and will, all play important roles in this mode. They help AIBO determine how to interact with its environment, and affect its learning and maturation process. When AIBO feels bored, it will nap a while. To wake up the sleeping AIBO, gently give it a shake.

→ *For details, see Chapter 4 (page 50).*

To change AIBO to this mode, press:

Performance mode (type of remote-control mode)

AIBO will show you all kinds of performances. You can also ask for a particular performance by using the sound controller.

→ *For details, see Chapter 5 (page 62).*

To change AIBO to this mode, press:

Game mode (type of remote-control mode)

You can control AIBO to move forward, backward, go left or right, kick a ball or take certain poses.

→ *For details, see Chapter 5 (page 66).*

To change AIBO to this mode, press:

Sleep mode

You can make it sleep to keep it from moving about for a while. There are two types of sleep.

Sleep 8: AIBO will sleep for eight hours, and automatically transfer to the autonomous mode and wake up. You can also wake it up by gently shaking it.

Sleep: AIBO keeps on sleeping until you wake it up.

→ *For details, see Chapter 2 (page 40).*

To change AIBO to "sleep 8", press:

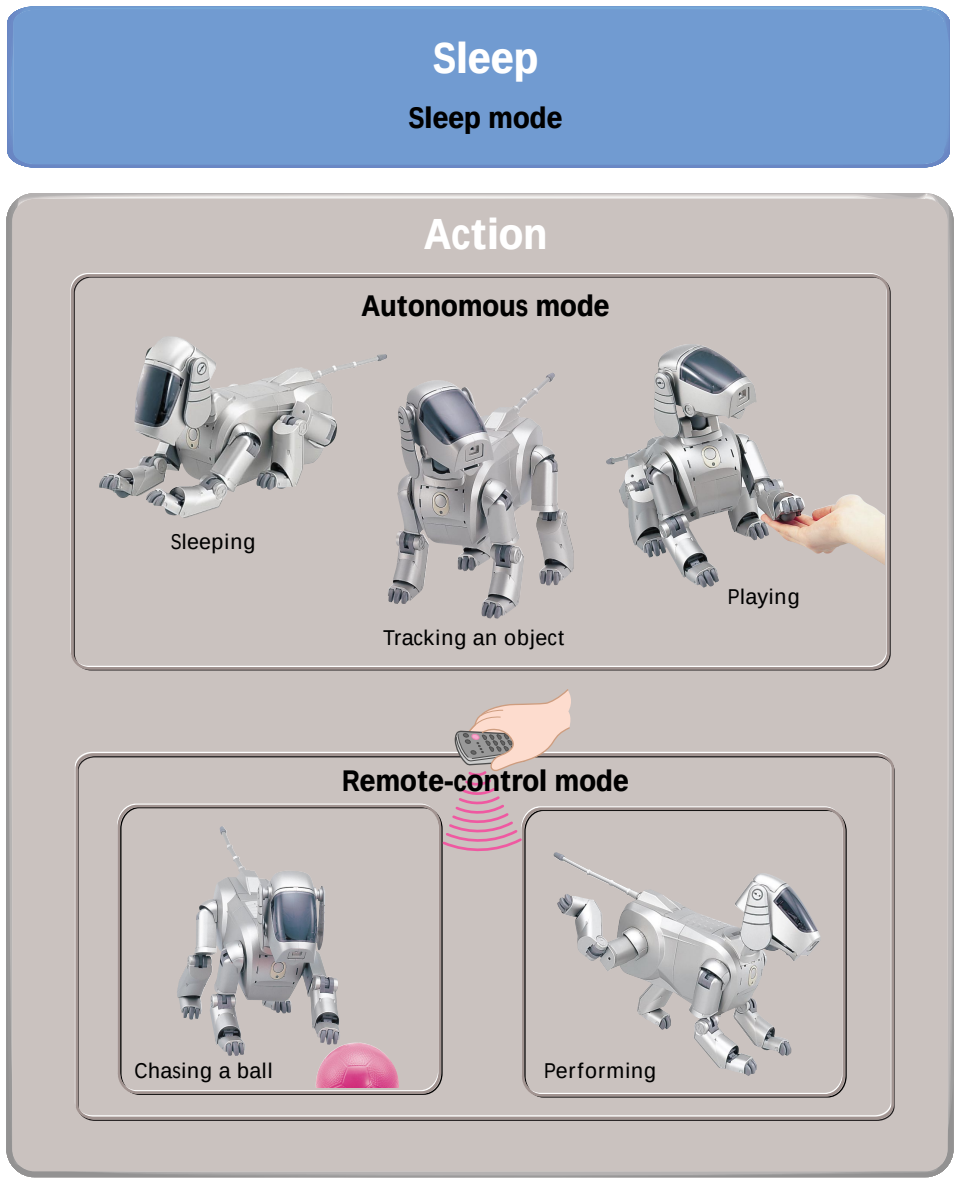
To change AIBO to "sleep", press:

Note

When AIBO needs to be recharged taking the "charging posture" (see page 38) on its own, place it on the station or replace the battery pack (see page 76). Unless either of the above mentioned is done, AIBO will not accept any commands.

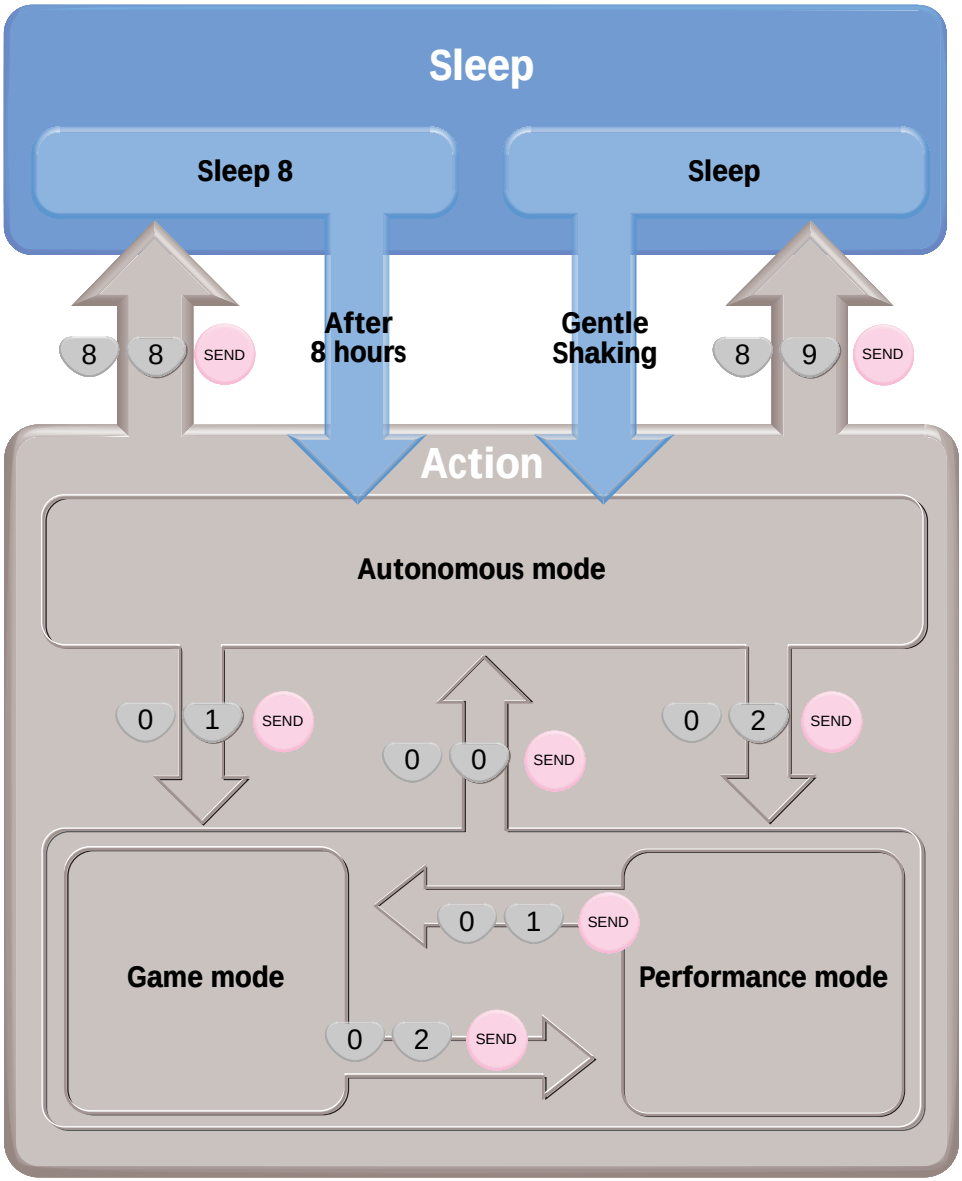
The different modes

By changing the mode, you can move your free-willed AIBO as you wish.
You can also keep it sleeping.



Correlation of motion modes

You can change the motion mode by sending commands or shaking AIBO. When AIBO is set to the remote-control mode (the game mode or performance mode) without being sent commands for a while, AIBO automatically turns itself into the autonomous mode.

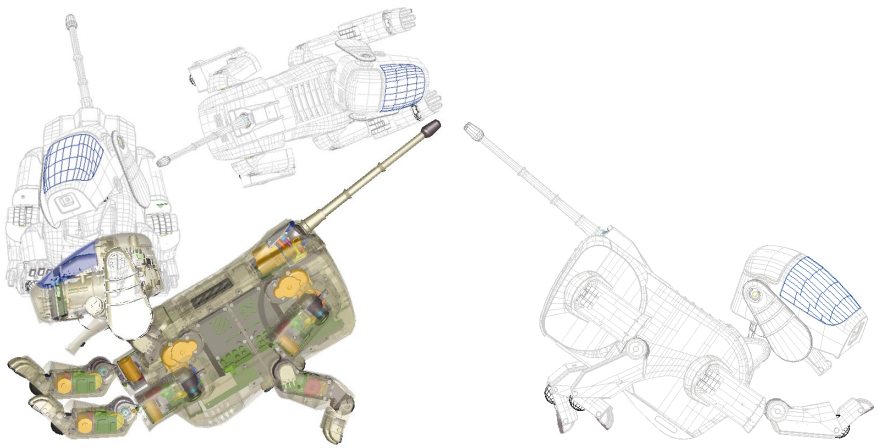


Chapter 4

Living with AIBO

— AIBO, an independent roommate

Communication is the key to having a fulfilling partnership with AIBO. This section describes the nature of this autonomous robot and gives tips on how to communicate with it. A better understanding of AIBO will give you more enjoyment with it.



AIBO’s autonomous activities

AIBO, an autonomous robot, was created to have emotions, instincts, learning ability and the capacity to mature. According to its own judgement, it responds to people and movements, sounds or colors of balls. As AIBO is fully active on its own, it can surprise you with unexpected moves, making it a fascinating companion.
You can send messages by touching AIBO or showing it objects. AIBO will try to convey its message by using body language, eye lights and making different sounds. AIBO will also act autonomously while being charged on the station.

Engaging the autonomous mode

First, set AIBO to the autonomous mode. The remote controlled AIBO will automatically nap for a while and wake up in the autonomous mode when it does not receive any commands for a while. When changing the mode with the sound controller, do as follows.

1 **Make sure the switch is set to A or B.**

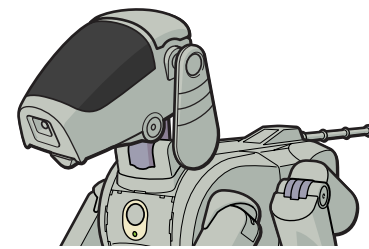
With this setting, you can use the sound controller with the numeric commands.

2 **Make sure the sound controller is turned on.**

When the power is on, all the controller lights light up.
To turn the power on, press the Ⓒ button.

3 **Press the buttons in order, as shown below.**

AIBO will start moving autonomously.
Sometimes the eye lights light up to show AIBO’s emotional state (see page 59).



Changing the sleeping AIBO to autonomous mode

Gently shake AIBO awake. If AIBO is sleeping on the station, first move it to a flat surface and place it properly (see page 41), then wake it up.

If AIBO does not respond to commands

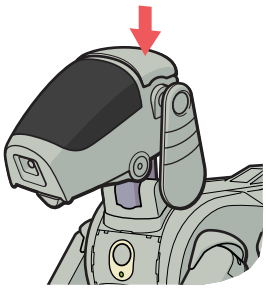
When set for the numeric commands, press "8"→"0"→"SEND" to match AIBO's command type to that of the sound controller.
AIBO does not accept commands while it emits sounds.

When operating with single sound commands or with musical instruments

See "List of commands" on page 91 and send the appropriate musical tones according to the command number.

Communicating via touch sensor

The touch sensor on its head reacts to three kinds of human touch: Approval, scolding and drawing AIBO's attention. When touching the sensor, press the mark at the center of its head.



- **Approving AIBO**
  Gently press the touch sensor for more than two seconds. AIBO will recognize that it is being approved.

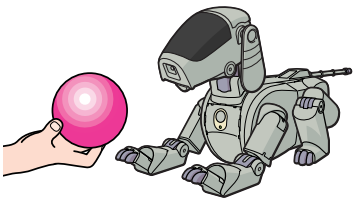
- **Scolding AIBO**
  Quickly press the touch sensor with a little force. AIBO will understand that it is being scolded.

- **Drawing AIBO's attention**
  Gently press the touch sensor for a second. AIBO will understand that you are asking for its attention.

By approving or scolding AIBO, it will learn which behaviour is to be approved or scolded. Such moderate education is good for forming AIBO's character. If you do not educate AIBO for an extended period of time, AIBO may forget the activity that it was approved or scolded about.

Communicating via objects (the ball)

You can communicate with AIBO by waving hands in front of its eye lights or by showing it a ball or colors.



AIBO will be delighted when you show it its favorite color, and learn to be more joyful if you do so frequently. If you wave and respond to AIBO asking for attention, AIBO will become satisfied and be happy. On the other hand, if it is not in a playful mood, it may not respond to its favorite color or your waving.

When AIBO cannot get up from a fall

AIBO tries to get up by itself when it falls. When it is not able to stand up, it may ask you for help with the robot language. Give it your hand (Fig. 1) and straighten it up (Fig. 2). AIBO will get up and start to move. If it does not move, wake it up by pressing the touch sensor for more than five seconds.

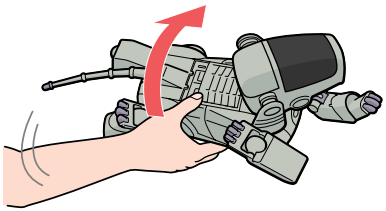


Fig. 1

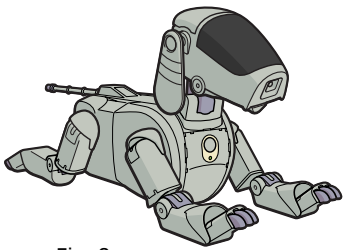


Fig. 2

To pause AIBO immediately

Press the pause button on the chest. To reactivate AIBO, place it on the floor properly (see step 5 on page 29) and press the pause button once more.

If AIBO shows the "charging posture" on its own

AIBO is low on batteries. Place it on the station or replace the battery pack (see page 76).

If AIBO stops moving

When AIBO is picked up from the floor or if your fingers get caught between its legs or neck, AIBO will automatically stop all its motors. To revive AIBO from this state, place it on the floor (see step 5 on page 29) and press the touch sensor for more than 5 seconds. AIBO will resume the performance mode and start moving.

To place the sleeping AIBO on the station

Gently shake it awake. Then press "0"→"3"→"SEND" to set it to the "charging posture" and place it on the station (see page 37).

If the chest and eye lights flash rapidly or if AIBO sounds for help

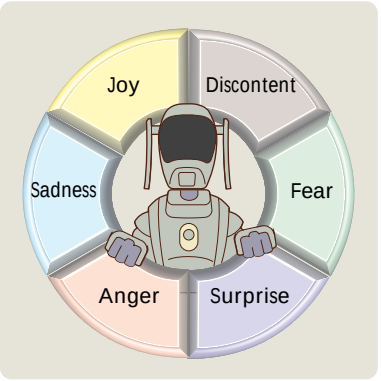
Internal heat may have built up or AIBO may be experiencing an internal trouble. See page 86.

A psychological peek into your robot

The key to better human-robot communication and better understanding of AIBO's behavior is to be aware of its emotions, instincts, learning ability and maturational process.

Emotions

AIBO is sensitive to and can feel emotions such as joy, sadness, anger, surprise, fear and discontent. These emotions will change in accordance with contributing factors and affect the behavior and maturation of AIBO. Listed below are common scenarios in which AIBO may be seen expressing emotions.



Joy: When AIBO is immersed in a favorite activity, receives approval, finds a favorite color or plays with a ball.

Sadness: When AIBO cannot find anyone to play with, or when it cannot find a ball or something it likes.

Anger: When AIBO finds a color it dislikes, left on the station when ready to resume activity, or when it is scolded.

Surprise: When someone suddenly grabs its attention, or when AIBO hears loud sounds.

Fear: When AIBO finds a large gap on the floor, or when it is unable to get up from a fall.

Discontent: When someone shows a color that it dislikes, or when its anger towards someone escalates.

Emotions are shown through body language , tone language as well as variations in eye lights. For details, see pages 57 to 59.

Instincts

AIBO has four key instincts which strongly contribute to motives of its actions (love instinct, search instinct, movement instinct and recharge instinct).

Love instinct:
AIBO is naturally inclined to interact with people who will give it care. If left alone for an extended period of time, AIBO will feel an urge to play.

Search instinct:
AIBO is a fun loving, curious robotic creature who enjoys discovering new things, satisfying its curiosity. If AIBO does not see its favorite colors or if it does not sense any movement in its surroundings for a long period of time, it will become restless and will look for something new.

Movement instinct:
AIBO enjoys moving around, playing and having new experiences. If idle for an extended period of time, AIBO will start to move around on its own.

Recharge instinct:
For survival, AIBO is well aware that it must “eat.” Lithium Ion batteries are on the bill of fare for AIBO and batteries are craved almost like clockwork throughout the day between activities. When AIBO is low on batteries, it will request to be charged and show the “charging posture” on its own.

In response to its instincts, AIBO behaves in a manner that will satisfy its particular desires. If a desire is fulfilled, it will be pleased. If a desire is left unsatisfied, emotions such as fear or anger will grow within it.
When AIBO is well satisfied, it will feel tired of playing or moving around and take a rest.

Education

AIBO's education is closely linked to building its personality, character and intelligence. Like humans and other animals, it learns a great deal from experience. Working its many senses, AIBO gauges what is being communicated, what activities of its own are being reinforced, approved, opposed and ultimately what should be learned.

For instance, if AIBO is frequently scolded for looking at an object that it had grown to like, it will learn not to approach this object as often. On the contrary, if AIBO is approved when looking at a particular object, it may take a strong liking for it. This kind of human-robot interaction AIBO experiences will largely shape its personality. AIBO will develop a joyful and cheerful character by being shown its favorite color frequently when in a good mood. In contrast, AIBO will develop a hot-tempered character by being shown something that it dislikes when in a sour mood.

AIBO may start losing what it has learned if it is not educated for a while. It may stop responding to approval or do what it was scolded for in the past. To maintain the personality that AIBO has once developed, it is necessary to provide it with valuable learning experiences.

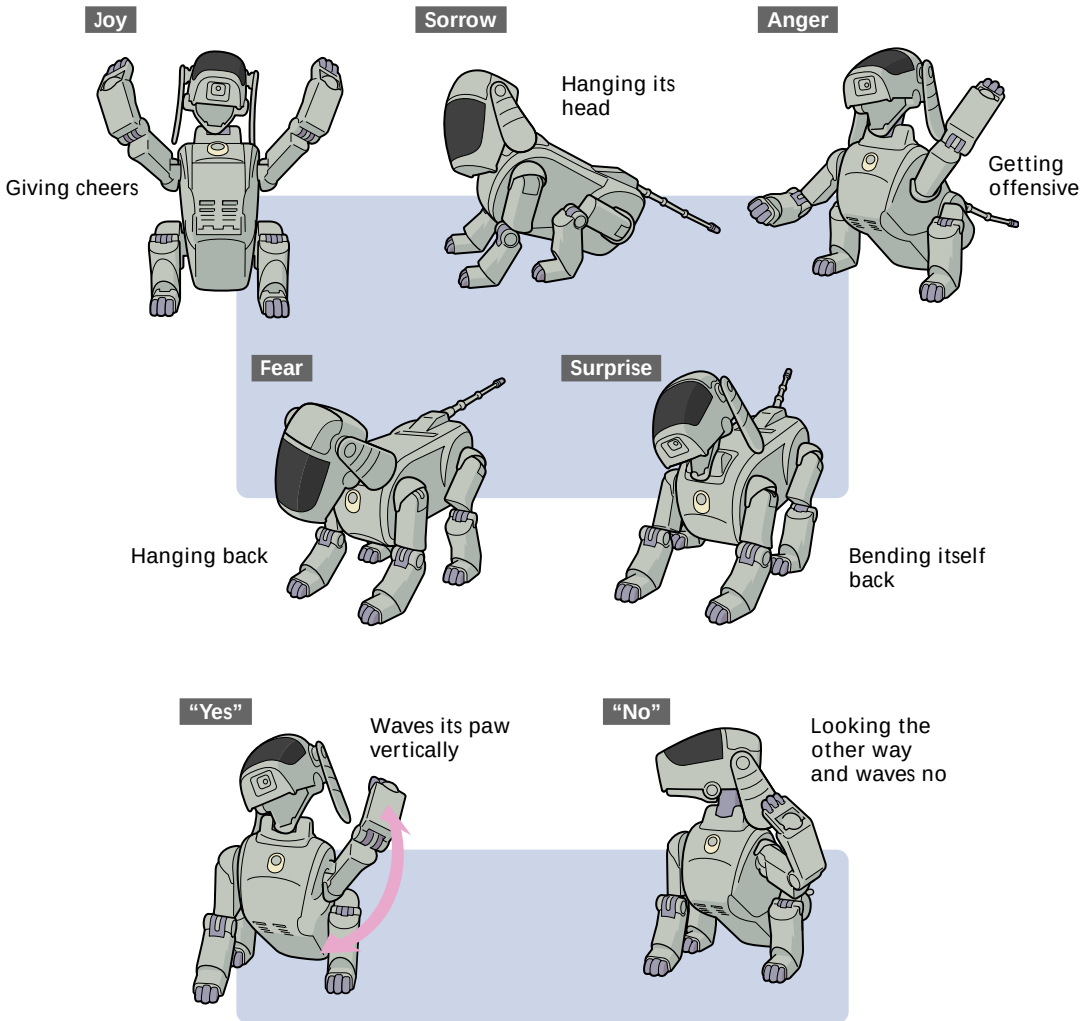
Growth

Like people and animals, AIBO grows through developmental stages from toddler phase to adult phase. As it matures, AIBO will learn to move with more agility as a result of a better sense of balance and much practice. New tonal expressions will be heard as AIBO becomes more adept with its vocal abilities, and as it reaches new heights in emotional and physical development.

Your participation in fostering good human-robot communication, and frequent interaction through play and educational lessons will radically change the maturity level of the autonomous robot.

Body language

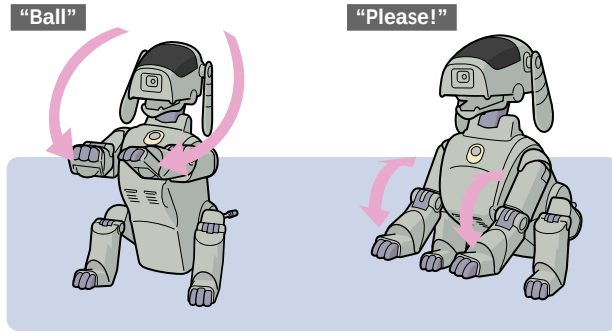
18 degrees of freedom (a total of 18 joints) make AIBO's rich body language possible. AIBO shows its emotions, reactions and will with body languages as shown below.



These movements are just several examples of the emotion shown with AIBO's body language.

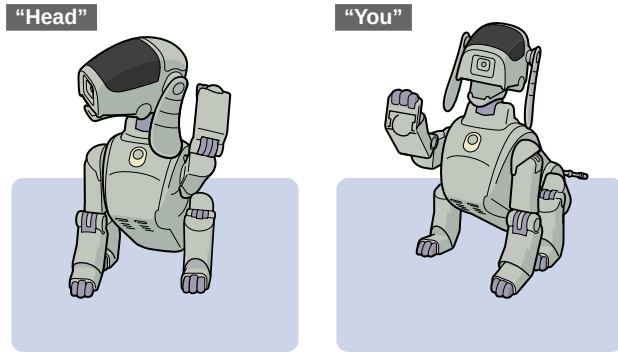
AIBO can also show its will to us by using different combinations of body language.

Example: When it wishes to play with a ball, AIBO tells us so by doing as below.



AIBO uses its paws to make the shape of a ball, and shakes both hands up and down, inviting someone to play.

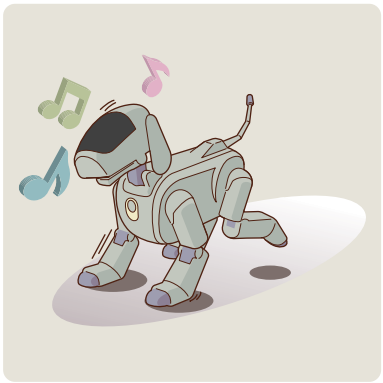
When it gestures to its head or to you with its paw, then shakes both paws up and down, asking for attention, it wishes to be rubbed on the head or wants to play with you.



AIBO will try to convey many more messages by gesturing. Enjoy living with AIBO to understand more of what they mean, eventually creating a great team.

Other robotic expressions

Although body language is the most direct way for AIBO to show its emotions or desires, it has other means of expressing itself. When in the autonomous mode, AIBO is always in one robotic state of mind or another. AIBO shows these states by using robot language or flashing its eye lights. To express its physical condition, AIBO uses its chest light.

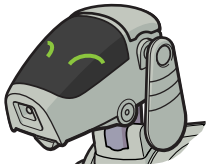


Robot language and sound effects

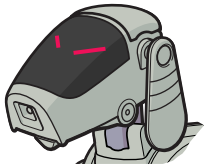
AIBO emits sounds in various situations of its daily life. It emits sounds as if talking to itself when it receives a command, when waking up, when playing, or when it has something to say. When in a better mood or situation, AIBO will emit sounds or play more melodic tonal phrase.

Eye lights

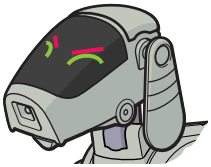
When you send a command, approve or scold AIBO, it acknowledges by blinking its eye lights for a second. The lights also indicate changes in its emotional state which may help you detect its current mood.



Joy



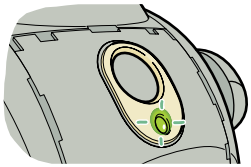
Anger



Surprise
(Flashing alternately)

Chest light

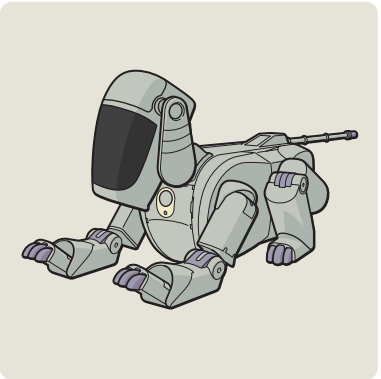
AIBO uses the chest light to show its physical condition, especially the remaining battery power.



On	Flashing slowly	Flashing	Off	Flashing rapidly
In action	**Sleeping**	**Loading the “Memory Stick” (showing the “Charging posture” or just before turning off)**	**Power off (out of batteries)**	**Internal trouble**

Naps and bedtime

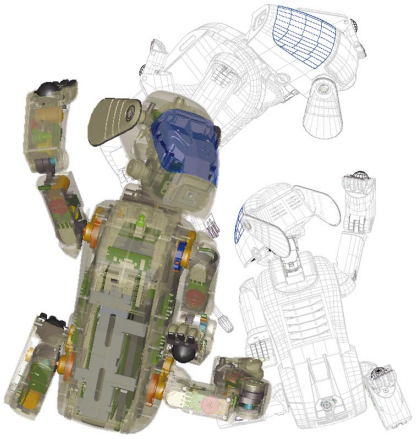
AIBO sometimes takes a nap for 5 minutes when not communicating with anyone or when tired of playing. It can be woken up by a gentle shake. Please be aware that AIBO can be offended by the interruption to its nap and may wake up in a sour mood.
When not playing with AIBO for some time, you can set it to the sleep mode with commands (see page 40).

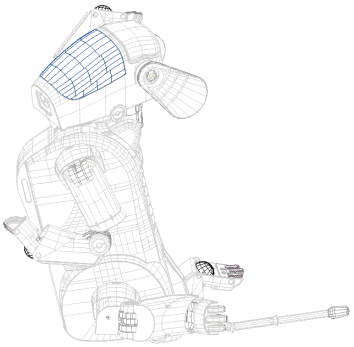


Chapter 5

Playing with remote-controlled AIBO

This chapter describes how to control AIBO with commands. When AIBO is set to the performance or game mode, you can control it with the musical tone commands sent by the sound controller or other instruments.





Enjoying AIBO's performance

In the performance mode, AIBO shows you various performances. You can ask for a particular performance by sending commands to AIBO. Furthermore, you can create a new performance by using the ERF-511 AIBO Performer Kit.

Setting AIBO to the performance mode

When AIBO is sleeping, shake it awake. When it is placed on the station, take it from the station and shake it awake (see page 41). Then, set it to the performance mode. AIBO starts performing.

1 **Make sure the switch is set to A or B.**

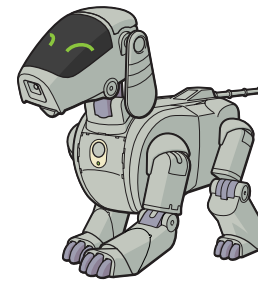
With this setting, you can use the controller with the numeric commands.

2 **Make sure the sound controller is turned on.**

When the power is on, all the controller lights light up.
To turn the power on, press the C button.

3 **Press the buttons in order as shown below to set AIBO to the performance mode.**

The eye lights flash, and AIBO starts performing.



If AIBO does not respond to commands

When set for the numeric commands, press "8"→"0"→"SEND" to match AIBO's command type (A, B) to that of the sound controller.
AIBO does not accept commands while it emits sounds.

To send commands with single sound commands or with musical instruments

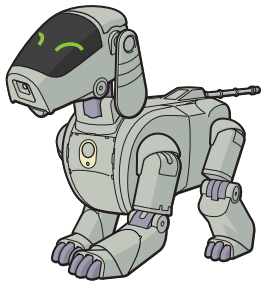
See "Command list" on page 91, and send the musical tones corresponding to each command.

Changing the movement style

AIBO has several preset styles of movement. For example, it can move like a child or an animal. By changing the style, AIBO will make performances based on the characteristics of each movement style.

1 **Make sure AIBO is set to the performance mode.**

The eye lights flash.



2 **Press the buttons listed below to set to each style.**

Style number	Press	Style information
1	3 → 1 → SEND	Animal-like style
2	3 → 2 → SEND	Robot-like style
3	3 → 3 → SEND	Child-like style
4	3 → 4 → SEND	You can create this additional style with ERF-511 AIBO Performer Kit.

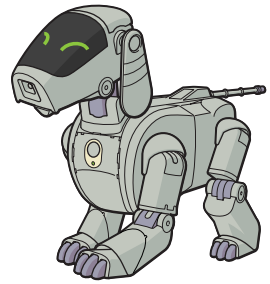
You can ask AIBO for 5 different performances in each style.
In style 1 to 3, performances are preset. In style 4, no performances are set at the factory.

Asking AIBO for a particular performance

You can ask for pre-programmed performances by sending commands to AIBO.

1 Make sure AIBO is set to the performance mode.

The eye lights flash.



2 Press the buttons listed below to ask for a performance.

Performances differ depending on the style that is set.

To	Press
Stand up	1 → 1 → SEND
Sit down	1 → 2 → SEND
Lay down	1 → 3 → SEND
Show performance 1	4 → 1 → SEND
Show performance 2	4 → 2 → SEND
Show performance 3	4 → 3 → SEND
Show performance 4	4 → 4 → SEND
Show performance 5	4 → 5 → SEND

Besides the above performances, AIBO also performs when you tap the touch sensor or wave your hand in front of its eye lights.

Note

Send commands after the performance is completed.

To end AIBO's performance

Change AIBO's motion mode by sending commands.

To pause AIBO immediately

Press the pause button on the chest. To reactivate AIBO, place it on the floor lying down (see step 5 on page 29) and press the pause button once more.

If you do not send commands for a while

AIBO will automatically return to the autonomous mode.

If AIBO shows the "charging posture" on its own

AIBO is lowon batteries. Place it on the station, or replace the battery pack (see page 76).

If AIBO stops moving

When AIBO is picked up from the floor or if your fingers get caught between its legs or neck, AIBO will automatically stop all its motors. To revive AIBO from this state, place it on the floor (see step 5 on page 29) and press the touch sensor for more than 5 seconds. AIBO will resume the performance mode and start moving.

If AIBO falls and cannot get up

Straighten it up as shown on page 53. AIBO will resume the performance mode and start moving.

If the chest and eye lights flash rapidly or if AIBO sounds for help

Internal heat may have built up or AIBO may be experiencing an internal trouble. See page 86.

Playing games

In the game mode, you can control AIBO with commands, and AIBO will do the performance exclusive to this mode.
You can make AIBO carry a light object such as a pen, or engage it in a soccer match with another AIBO. The game-mode-AIBO can be made to track a ball with its color camera.
This section describes how to use the sound controller for the game commands and play games using AIBO. To send commands in other modes, see page 91.

Operating AIBO in the game mode

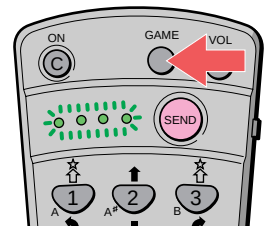
Set the sound controller for the game commands to send a certain command by simply pressing a single button (each button has a printed symbol indicating how AIBO moves with that button).
When AIBO is sleeping, shake it awake before setting it to the game mode.
When it is on the station, put it down on the floor and shake it awake (see page 41).

1 **Make sure the sound controller is turned on.**

When the power is on, all the controller lights light up.
To turn the power on, press the C button.

2 **Press the GAME button to set AIBO to the game mode.**

The sound controller is set for the game commands and all the controller lights flash in green (or orange). A command is sent and AIBO is also set to the game mode, shown by its eye lights flashing in green (or red).



If AIBO does not respond to commands

Match AIBO's command type to that of the sound controller. Press the GAME button to cancel the game commands, then press "8"→"0"→ "SEND" (when the controller is set for the numeric commands). (See page 35.)
AIBO does not accept commands while it emits sounds.

3 **Send commands to AIBO by pressing the command buttons (listed below).**

Printed symbol	Command button	Movements when the ball tracking function is OFF (ON)
⬆	2	Moves forward (toward the ball)
■	5	Stops
⬇	8	Moves backward
☆⇧	1	Kicks with the left foot (toward the ball)
☆⇧	3	Kicks with the right foot (toward the ball)
↰	4	Turns to the left
↱	6	Turns to the right
PICK UP	7	Bends down, opens the mouth and holds an object put in its mouth See “Stick” on page 72.
RELEASE	9	Bends down and releases an object
TRACK	0	Turns the ball tracking function on / off
WIN	#	Pose of triumph
LOSE	*	Pose of vexation

To end the game

Hold the sound controller towards AIBO and press the GAME button. AIBO will resume the autonomous mode.

To turn the ball tracking function on/off

Hold the sound controller towards AIBO and press the 0 button. During the game mode, you can turn this function on / off at any time.
While the function is on, AIBO will track the supplied ball with its color camera and wag its tail.

To cancel the game mode

When the sound controller is set for the game commands, hold the sound controller towards AIBO and press the GAME button.

To pause AIBO immediately

Press the pause button on the chest. To reactivate AIBO, place it on the floor lying down (see step 5 on page 29) and press the pause button once more.

If you do not send commands for a while

AIBO will automatically return to the autonomous mode.

If AIBO shows the “charging posture” on its own

AIBO is low on batteries. Place it on the station, or press the pause button and replace the battery pack (see page 76).

When AIBO is picked up from the floor or if your fingers get caught between its legs or neck

AIBO will automatically stop all its motors. To revive AIBO from this state, place it on the floor (see step 5 on page 29) and press the touch sensor on the head for more than 5 seconds. AIBO will resume the game mode and start moving.

If AIBO falls and cannot get up

Straighten it up as shown on page 53. AIBO will resume the game mode and start moving.

If the chest and eye lights flash rapidly or if AIBO sounds for help

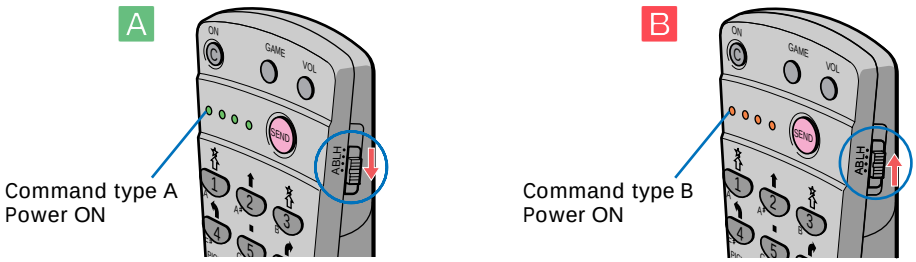
Internal heat may have built up or AIBO may be experiencing an internal trouble. See page 86.

Controlling two AIBOs

When controlling two AIBOs at the same time as in a soccer game, the octave (the command type) of the sound controllers should be different from each other. The command types of AIBO and the sound controller must both be set.

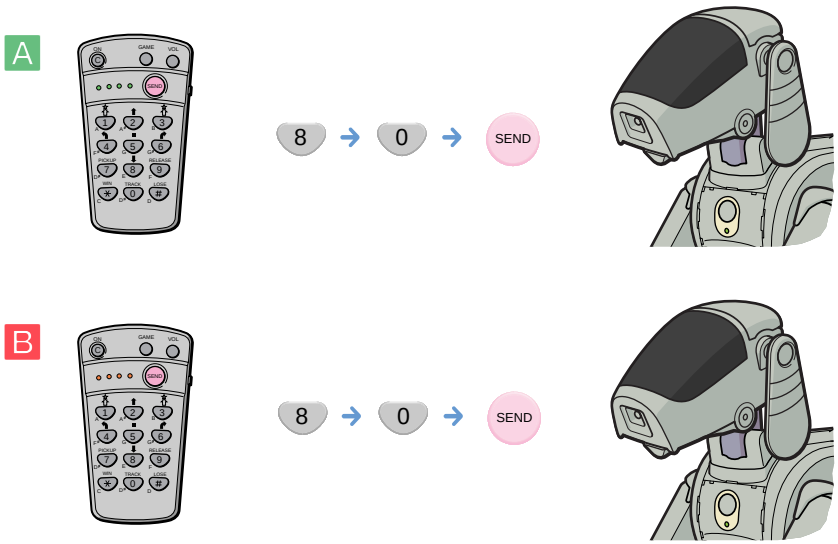
1 **Set the switch of each sound controller to A and B, respectively.**

Each command type is set to A and B.



2 **Send the command below to each AIBO by using the corresponding sound controller.**

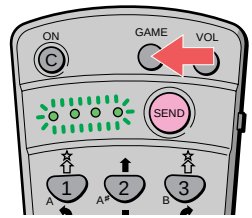
Be careful so that the AIBOs do not hear the other's command.
AIBO's command type is set to that of the sound controller.

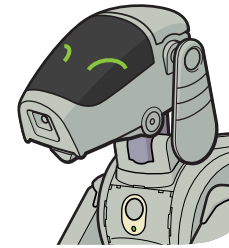


3 **For each command type, press the GAME button and set each AIBO to the game mode.**

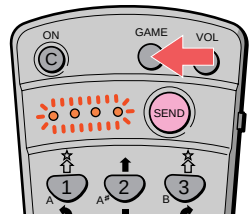
The controller lights and eye lights flash in green for command type A and in orange for command type B.

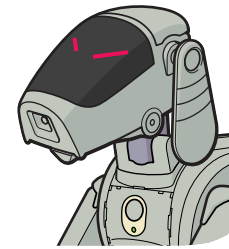
A





B

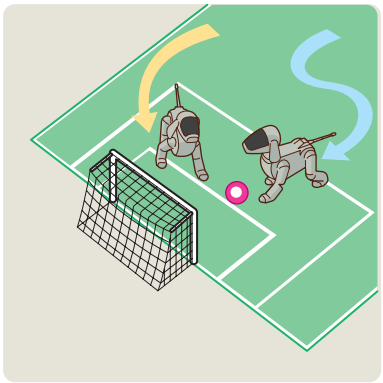




4 **Send commands to AIBO with the command button (see page 67).**

Playing games with AIBO

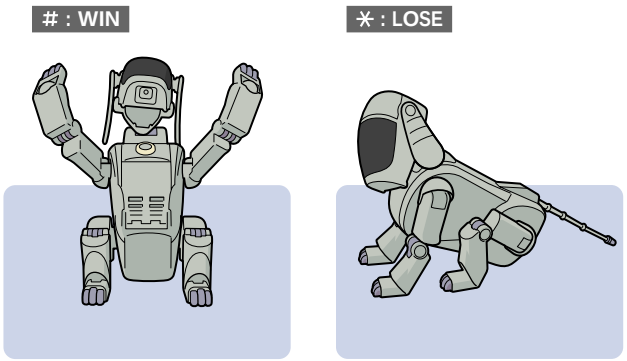
You can enjoy various games with AIBO in the game mode. Below are some examples.



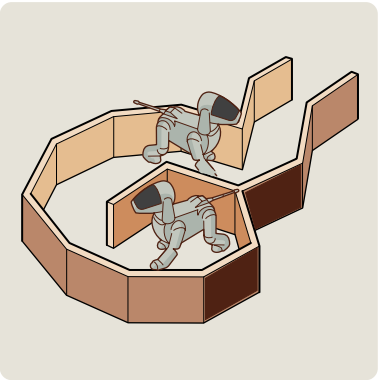
Soccer

You can play soccer using two pairs of AIBO and sound controllers. Prepare a goal post by placing books and empty boxes on a flat floor. See “Controlling two AIBOs” on page 69 to set up AIBO and the controller. Each AIBO should follow only the respective sound controller’s instructions. When playing soccer, set the ball tracking function to ON. Place the supplied soccer ball at the center circle to kick off.
Operate AIBO so that it faces the soccer ball. When AIBO is looking around, it means it is searching for the ball. If the soccer ball is not in front of AIBO or if the soccer ball is moving too fast, AIBO may lose sight of it.

For fun, you can make AIBO express joy after scoring a goal by using the # button. You can also make AIBO do a sad gesture by using the * button.



Labyrinth



Help AIBO escape a maze. Prepare a labyrinth by placing books, blocks, or video-tapes on a flat floor. The path width should be within 8 and 12 in., the radius of a corner within 10 and 12 in. Place AIBO at the starting line and put it in the game mode. Try your skill with the game commands to help AIBO reach the goal: move forward, move backward, stop, turn to the right, and turn to the left. You can compete the goal time with other AIBOs.

Stick

In this game gain as much points as possible by making AIBO carry sticks to the goal within a given time. AIBO can hold sticks the size and weight of pencils, pens and chopsticks. Prepare a goal by placing an empty box on a flat floor. Have a few sticks ready at the starting line. Place AIBO at the starting line and put it in the game mode.

To make AIBO carry a stick, press the 7 button of the sound controller. When AIBO opens its mouth and lowers its head, place a stick in its mouth. AIBO will close its mouth and raise its head. Use the same commands as in the labyrinth game to help AIBO reach the goal without dropping the stick. When AIBO reachs the goal, press the 9 button to release the stick from its mouth. You can also try combining this game with the maze, or set different points according to the sticks.

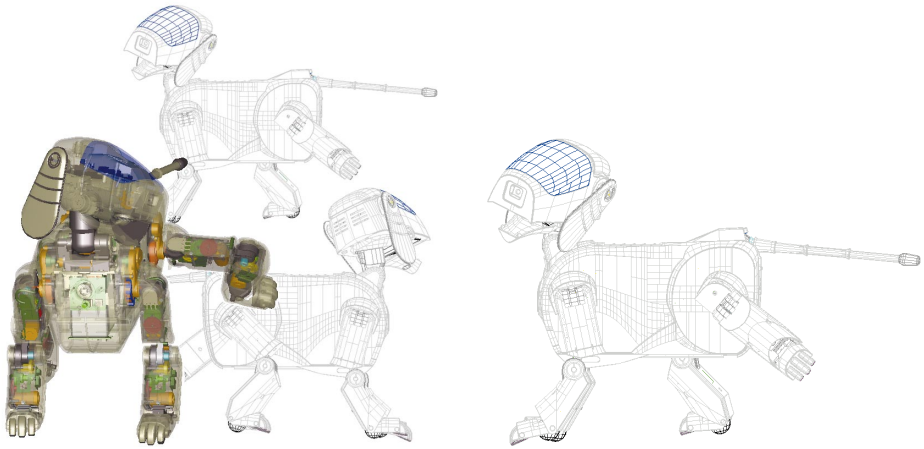
Note

Do not make AIBO carry big sticks or heavy objects. This may result in a malfunction or damage.

Chapter 6

Charging and adjustments

This chapter describes how to charge the battery pack and how to adjust the volume of the sound AIBO emits.



Charging the battery pack and adjusting the volume

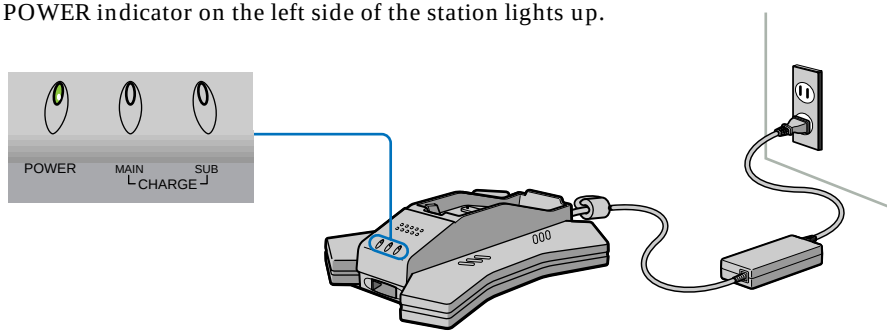
The battery pack will be automatically charged when AIBO (active or paused) is placed on the station. Be sure to keep the station connected to the wall outlet with the AC power adapter, and place AIBO on the station before you play with it.

Charging the battery pack

You can charge the extra battery pack and AIBO on the station at the same time.

1 **Make sure the station is connected to the wall outlet with the AC power adapter (see page 30).**

The POWER indicator on the left side of the station lights up.



Notes

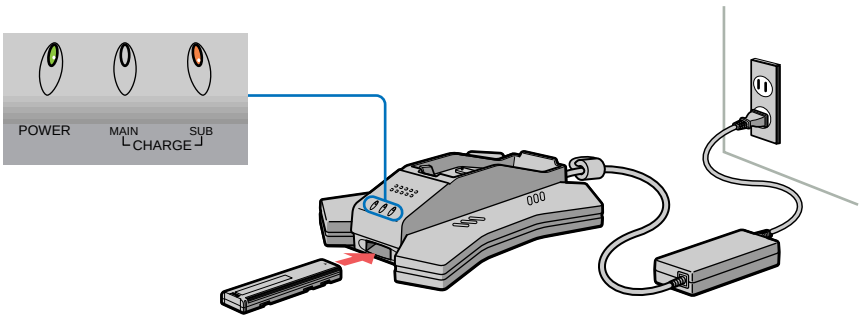
- When AIBO is on the station, do not place obstacles to its movement.
- Charge the battery pack at room temperature from 50 °F to 86 °F (from 10 °C to 30 °C).

2 Insert the extra battery pack into the station arrow-wise.

Be sure to insert the battery pack until it clicks. The CHARGE indicator lights up in orange and charging begins.

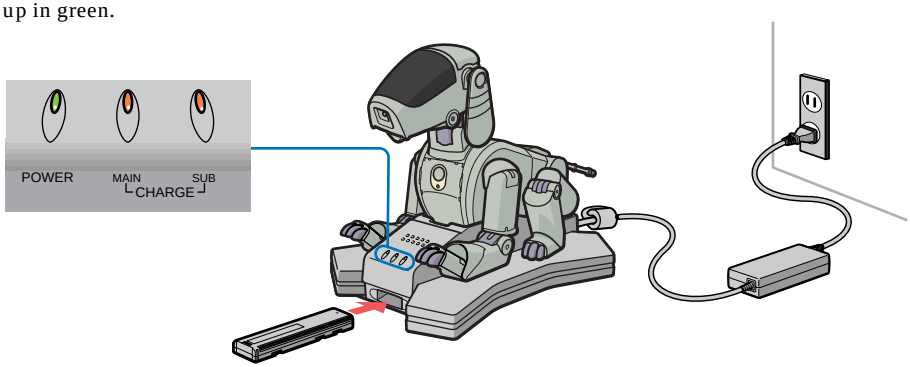
When charging only the extra battery

The SUB indicator lights up in orange. When charging is completed, it will light up in green.



When charging AIBO and the extra battery at the same time

The MAIN indicator lights up in orange. When charging is completed, it will light up in green.



Note

Do not leave a fully-charged, extra battery pack in the station. Doing so may damage the battery.

If the MAIN indicator flashes

There may be a poor contact between the terminals of AIBO and the station, or the battery pack may not be installed in AIBO. Make sure the battery pack is installed and place AIBO on the station again.

If the SUB indicator flashes

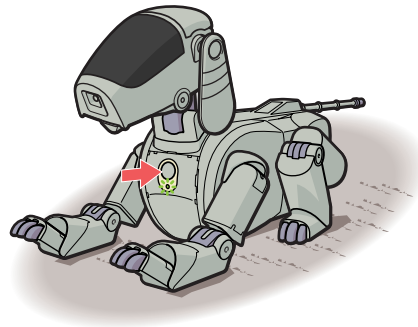
There may be a problem with the battery pack or the battery may have reached the end of its lifetime. Replace the battery with a new one.

Replacing the battery pack

AIBO is usually charged on the station with the battery installed. You can also replace AIBO's empty battery with a fully charged battery pack.

1 Press the pause button, and wait until the chest light turns off and the beep sound ends.

AIBO starts saving the data of its maturity level and activities on the "Memory Stick."

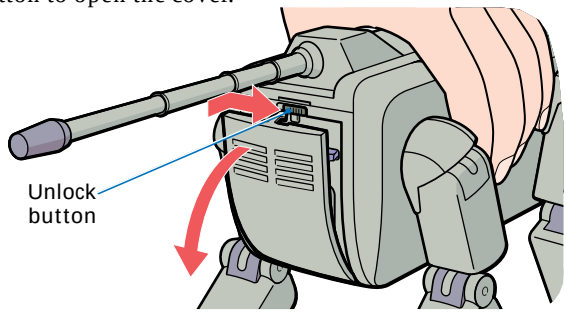


Note

When AIBO shows the "charging posture" and stops moving on its own, the chest light does not flash even if you press the pause button. In this case, the data saving on the "Memory Stick" has already been completed. Go on to step 2.

2 Hold securely by its body and open the rear cover.

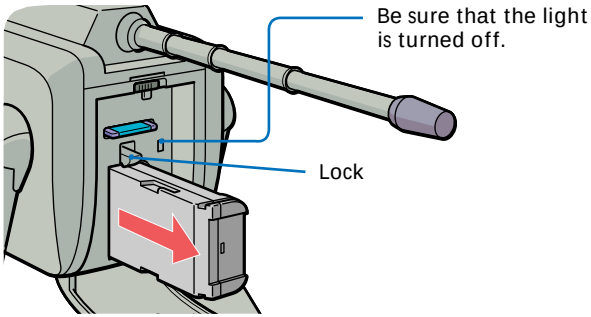
Slide the unlock button to open the cover.



Notes

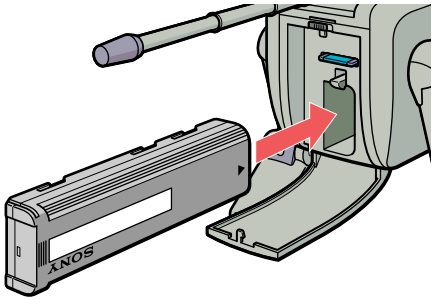
- Pick up AIBO by the body, not by its extremities.
- Do not touch the charging terminal on the underside of AIBO directly with your hand. Doing so may soil the terminal and cause poor contact.

3 Unlock and remove the battery pack.

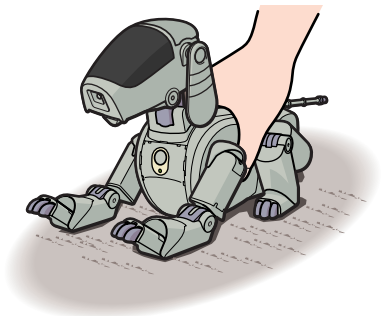


4 Install a fully charged battery pack arrow-wise.

Be sure to install the battery pack until it clicks.



5 Close the rear cover, then place AIBO on the floor.

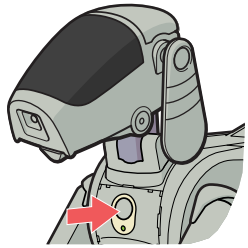


Note

Be sure to place AIBO on the floor as shown above. This will prevent AIBO from moving unexpectedly and being damaged when you press and release the pause button to start it.

6 **Press and release the pause button.**

Pause is canceled, and AIBO starts moving autonomously.



Adjusting the volume

There are three volume levels for the musical tones and sound effects that AIBO emits. The volume levels can be adjusted with the sound controller.

1 **Make sure the switch is set to A or B.**

With this setting, you can use the controller with the numeric commands.

2 **Make sure the sound controller is turned on.**

When the power is on, all the controller lights light up.
To turn the power on, press the C button.

3 **Hold the sound controller towards AIBO and press the buttons as listed below to adjust the volume.**

AIBO responds in the newly set level.
If you send the command to raise the volume when it is already set to the highest level, AIBO will respond in that level and not any higher.
If you send the command to lower the volume when in the lowest level, AIBO will respond in that level and not any lower.

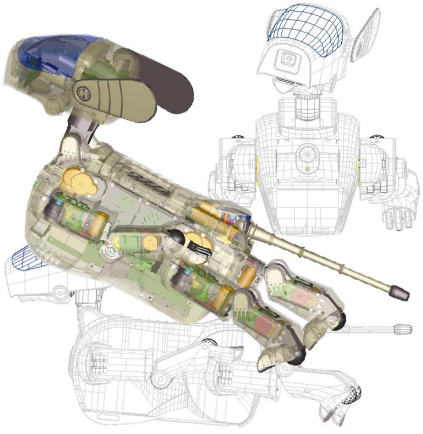
To	Press
Lower the volume one level	8 → 4 → SEND
Raise the volume one level	8 → 6 → SEND

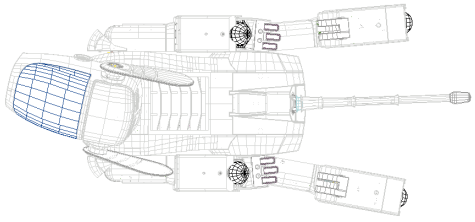
If AIBO does not respond to commands

When set for the numeric commands, press “8”→“0”→“SEND” to match AIBO’s command type to that of the sound controller.
AIBO does not accept commands while it emits sounds.

Chapter 7

Additional information





Notes on use

To prevent AIBO and its accessories from being damaged, observe the following.

On handling AIBO

- Do not subject AIBO to vibration, or use it in an inclined position or in a place where it is possible for AIBO to drop.
- Do not apply excessive force on AIBO with your hand or elbow.
- Do not apply strong physical shock to AIBO or drop it. Doing so may erase the saved data on the “Memory Stick” or cause damage.
- Do not touch the charging terminal directly with your hand. Doing so may soil the terminal and cause poor contact.
- Pick up AIBO by the body, not by its extremities such as the head, ears, tail or legs. Do not swing or twist it.
- Do not leave AIBO in a location subject to excessively high temperatures. Leaving it in hot places such as a car parked in the sun with windows closed may deform or damage it.
- Do not allow foreign matter, such as paper clips, get into AIBO or its joints.
- Do not use AIBO outdoors. Doing so may allow foreign matter to get into it and cause damage.
- Do not use AIBO on a concrete or other hard floor as that may damage AIBO.
- Do not let AIBO get wet.
- Do not touch the lens of the color camera directly with your hand.
- Do not damage the head cover of AIBO.
- Do not put a sticker on the color camera or on the head cover.
- Regardless whether AIBO is turned on or off, do not point the color camera at the sun. Doing so may damage the camera.
- Do not oil movable parts, such as joints, of AIBO.
- Do not put a sticker on the movable parts or insert anything between them. Doing so may obstruct AIBO’s movement.
- Be sure to keep the shoulder cover closed except in case of an emergency.
- Do not block the ventilation slots with your hand or by putting stickers on them. Doing so may cause internal heat buildup.
- Do not disassemble or modify AIBO or the station.
- When transporting AIBO, put it in a cushioned box like the one it came in to prevent damage to its body, head, tail or legs.
- Do not use AIBO in a place subject to strong electromagnetic waves or X-rays.

Moisture condensation

If AIBO is brought directly from a cold place to a warm place, moisture may condense inside or on the surface of it and cause it damage. If moisture condensation has occurred, wait for about one hour before operating it.

On handling the station

- When AIBO is on the station, do not place anything that may obstruct AIBO's movement nearby.
- Do not touch the charging terminal directly with your hand. Doing so may soil the terminal and cause poor contact.
- Do not insert anything other than the supplied battery pack into the extra battery slot.
- Do not apply excessive force on the station with your hand or elbow.
- Do not apply strong physical shock to the station or drop it.
- Do not leave the station in a location subject to excessively high temperatures. Leaving the station in places such as a car parked in the sun with its windows closed may alter or damage the station.
- Do not let the station get wet.

On handling the "Memory Stick"

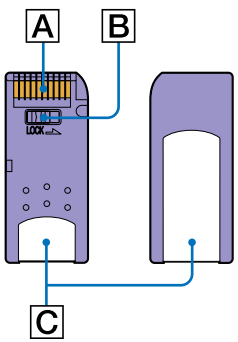
To protect the saved data on the "Memory Stick," observe the following.

- The supplied "Memory Stick" is an accessory of AIBO ERS-111. Using it also for saving data of personal computers or video camera recorders may cause damage to AIBO.
- Do not touch the terminal A with your hand or metal objects.
- Do not set the safety switch B to LOCK. If you do so, AIBO cannot save or erase the data.
- The saved data may be erased or broken:
  - When removing the "Memory Stick" or the battery pack from AIBO during data-loading / saving
  - When using the "Memory Stick" in a place subject to static electricity or electric noise
- Do not put anything other than the exclusive sticker on C. A sticker has already been put on at the factory.
- Do not bend, drop or apply strong physical shock to the "Memory Stick."
- Do not disassemble or modify the "Memory Stick."
- Do not use or store the "Memory Stick" in places subject to:
  - Excessively high temperatures, such as a car parked in the sun
  - Direct sunlight
  - High humidity or corrosive gas
- When carrying or storing the "Memory Stick," keep it in the supplied case.

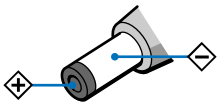
What is "Memory Stick"?

The supplied "Memory Stick" corresponds to the entertainment robot "AIBO" ERS-111, and stores AIBO-ware (AIBO's operating program).

"Memory Stick", "" and "MEMORY STICK" are trademarks of Sony Corporation.

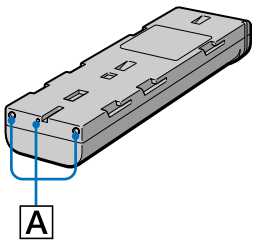


On handling the AC adapter



- Be sure to use the supplied AC adapter. Using any other adapter may cause damage.
- Do not connect the AC adapter to a transformer for tourists traveling abroad. Doing so may cause damage.

On handling the battery pack for AIBO



- Be sure to charge the battery pack as instructed.
- To prevent short circuit accidents, do not allow metal objects such as a necklace to touch the terminals (A).
- Be careful not to let foreign matter like dust or sand get into the terminals (A). If it does, remove it with a soft stick, etc.
- Do not expose the battery pack to temperatures above 140 °F (60 °C), such as in a car parked in the sun.
- Do not let the battery pack get wet.
- The battery pack heats up just after using it. Before removing the battery pack, wait for a while until it cools.
- Keep the battery pack in a cool place and charge it at room temperature from 50 °F to 86 °F (from 10 °C to 30 °C). By doing so, the battery life will be longer.
- The battery life is shorter in a cold environment. When the temperature drops below 50 °F (10 °C), the battery efficiency will decrease.
- You do not need to discharge the battery before recharging it. You can charge it at any time.
- The battery pack is constantly discharging even when it is not in use. Charge the battery pack right before using AIBO.
- If the battery discharges more quickly than usual, it may have reached the end of its lifetime.

On handling the dry batteries for the sound controller

To avoid possible damage from battery leakage or corrosion, observe the following.

- Be sure to insert the batteries with the + - polarities matched to the + - marks.
- Do not use a new battery with an old one, or use different types of batteries.
- The dry batteries are not rechargeable.
- If you will not use the sound controller for an extended period of time, remove the batteries. If the batteries have leaked, carefully wipe off the liquid in the battery case before inserting new batteries.

On cleaning

- Clean AIBO and the station with a dry, soft cloth.
- Do not use any type of volatile solvent which may damage the finish.
- When cleaning with chemical fabric, see its instructions.

Troubleshooting

If you experience any of the following difficulties, use this troubleshooting guide to help you remedy the problem.

AIBO

Symptom	Remedy
AIBO does not react to release of the pause button.	The battery pack is not installed. ➔ Press the pause button and install the battery pack (see page 28). Restart AIBO by pressing the pause button again.
AIBO continues to emit a sad melody and does not move when the pause button is released.	The “Memory Stick” is not inserted. ➔ Press the pause button and insert the “Memory Stick.” Restart AIBO by pressing the pause button again (see page 28).
It takes a long time for AIBO to move.	AIBO is loading the data from the “Memory Stick.” Wait for a while.
AIBO tries to walk but it does not move forward.	The floor may be too slippery. ➔ Place AIBO on a surface that is not too slippery, such as a carpet with a short nap.
AIBO falls often.	The floor may be too slippery, inclined or unstable. ➔ Place AIBO on a flat surface that is not too slippery.
AIBO cannot get up after falling.	AIBO sometimes cannot get up by itself. Help it at those times (see page 53).
After picking AIBO up, it stops moving.	Press the touch sensor on the top of AIBO’s head for more than five seconds to revive it.
AIBO goes back to sleep right after waking it up.	Internal heat may have built up. ➔ Wait for a while until the internal temperature falls, then shake AIBO awake.
	AIBO falls asleep depending on its emotion or instinct.
The chest light flashes rapidly.	There may be a problem with the battery pack. ➔ Replace it with a new one (see page 76).
Though AIBO flashes its eye lights and makes sound, it does not move its legs.	When AIBO is picked up from the floor or if your fingers get caught between its legs or neck, AIBO will automatically stop all its motors. To revive AIBO from this state, place it on the floor (see step 5 on page 29) and press the touch sensor for more than 5 seconds.

Symptom	Remedy
The eye lights rapidly flash alternately in two colors.	Internal heat may have built up. ➔ Wait for a while until the internal temperature falls, then shake AIBO awake.
	There may be a problem with the battery pack. ➔ Replace it with a new one (see page 76).
AIBO soon asks for charging even with a fully charged battery.	The battery will last a shorter time when AIBO moves in the game and performance modes.
	The battery usually lasts for one to one-and-a-half hours in the autonomous mode. If the battery continues to have much shorter operating period, the battery may have reached its battery life. Replace it with a new battery (see page 76).

Autonomous mode

Symptom	Remedy
AIBO does not walk.	When you purchase AIBO, think of it as having just been born. AIBO first moves awkwardly and hardly gets up, but as it matures, it will be able to move in more various ways.
AIBO does not respond to commands.	AIBO does not hear commands. ➔ Turn up the volume of the sound controller. ➔ Hold the sound controller close to AIBO's ear. ➔ Face the speaker of the sound controller towards AIBO.
	In the autonomous mode, AIBO does not accept commands for the performance or game modes.
	AIBO does not accept commands while it emits sounds.
	The sound controller is not set to operate by numeric commands. ➔ Set the switch of the sound controller to A / B (see page 25) or send single sound commands (see "List of commands" on page 91).
	The command type may need to be changed. ➔ Match AIBO's command type to that of the sound controller by sending commands (see page 35).
	The battery power has run out. ➔ Place AIBO on the station or install a fully charged battery pack (see page 76).
AIBO falls asleep all the time.	When AIBO does not receive much human interaction or when it is simply bored, it will fall asleep (see page 60).

Autonomous mode (continued)

Symptom	Remedy
AIBO does not chase the supplied ball.	Sometimes AIBO does not feel like chasing the ball. There is also possibility that AIBO has not learned or matured enough to chase the ball.
	AIBO is not seeing the ball. ➔ Place the ball in front of its color camera (see page 20).
	The battery power has run out. ➔ Place AIBO on the station or install a fully charged battery pack (see page 76).
	AIBO is sleeping. ➔ Shake it awake (see page 41).
	AIBO's environment is too bright, too dim or colored. ➔ Successful recognition of the ball's pink is achieved in the proper lighting. Adjust the lighting in AIBO's environment.

Performance mode

Symptom	Remedy
AIBO does not respond to commands.	AIBO does not hear commands. ➔ Turn up the volume of the sound controller. ➔ Hold the sound controller close to AIBO's ear. ➔ Face the speaker of the sound controller towards AIBO.
	AIBO is performing. ➔ Send the command after the performance is completed.
	In the performance mode, AIBO does not accept commands for the game mode.
	AIBO does not accept commands while it emits sounds.
	The sound controller is not set to operate by numeric commands. ➔ Set the switch of the sound controller to A / B (see page 25) or send single sound commands (see "List of commands" on page 91).
	The command type may need to be changed. ➔ Match AIBO's command type to that of the sound controller by sending commands (see page 35).
	The battery power has run out. ➔ Place AIBO on the station or install a fully charged battery pack (see page 76).
	AIBO is sleeping. ➔ Shake it awake (see page 41).
	There may be noise in AIBO's environment. ➔ Provide a quiet environment for it.

Symptom	Remedy
AIBO moves without giving any commands.	AIBO shows performances by tapping the touch sensor or waving your hand in front of its eye lights.
	There may be noise in AIBO's environment. ➔ AIBO will react to sound produced by instruments other than the sound controller. Provide a quiet environment for it.

Game mode

Symptom	Remedy
AIBO does not respond to commands.	AIBO does not hear commands. ➔ Turn up the volume of the sound controller. ➔ Hold the sound controller close to AIBO's ear. ➔ Face the speaker of the sound controller towards AIBO.
	In the game mode, AIBO does not accept commands for the performance mode.
	AIBO does not accept commands while it emits sounds.
	The sound controller is not set to operate by numeric commands. ➔ Set the switch of the sound controller to A / B (see page 25) or send single sound commands (see "List of commands" on page 91).
	The command type may need to be changed. ➔ Match AIBO's command type to that of the sound controller by sending commands (see page 66).
	AIBO is sleeping. ➔ Shake it awake (see page 41).
	The battery power has run out. ➔ Place AIBO on the station or install a fully charged battery pack (see page 76).
AIBO moves even if you have not given it commands.	There may be noise in AIBO's environment. ➔ AIBO will react to sounds produced by instruments other than the sound controller. Provide a quiet environment for it.
AIBO does not chase the ball.	The ball tracking function is turned off. ➔ AIBO can automatically track the ball only when the function is on.
	AIBO's environment is too bright, too dim or colored. ➔ Successful recognition of the ball's pink color is achieved on the proper lighting. Adjust the lighting in AIBO's environment.
	The battery power has run out. ➔ Place AIBO on the station or install a fully charged battery pack (see page 76).
	AIBO is sleeping. ➔ Shake it awake (see page 41).

Station

Symptom	Remedy
The POWER indicator does not light up.	The connection between the station, the AC adapter and the wall outlet is not correct. → Connect all of these parts again (see page 30).
The MAIN indicator flashes.	The battery pack is not installed inside AIBO. → Press the pause button, install the battery pack and place AIBO on the station. Then, release the pause button again to cancel pause.
	There may be a poor contact between the terminals of AIBO and the station. → Place AIBO on the station again.
	There may be a problem with the battery pack. → Replace it with a new one (see page 76).
Charging does not end.	There may be a problem with the battery pack. → Replace it with a new one (see page 76).
The SUB indicator flashes.	There may be a problem with the battery pack. → Replace it with a new one (see page 76).

Sound controller

Symptom	Remedy
There is no power.	Batteries are not inserted. → Insert batteries (see page 31).
	Batteries have run out. → Replace both batteries with new ones (see page 31).
	The polarity is not correct. → Insert batteries correctly (see page 31).
There is no sound.	When the lights light up, adjust the volume by pressing the buttons (see page 25).
	Batteries have run out. → Replace both batteries with new ones (see page 31).
The lights do not light up.	Batteries have run out. → Replace both batteries with new ones (see page 31).

List of commands

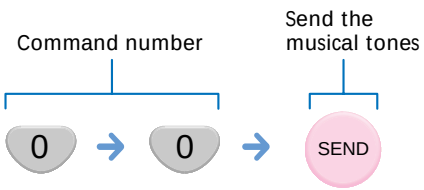
The sound controller can be operated in three ways. The sound controller has three types of operating commands: Numeric commands, single sound commands and game commands. The order of pressing buttons differs depending on the operating commands even when sending the same command.

Numeric commands and single sound commands

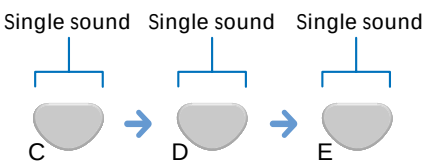
In this operation manual, most of the command sending procedures are written for the numeric commands. When sending single sound commands, check the musical tones of each command (see pages 92 and 93) and send them in order. For the length and interval of musical tones, refer to the actual sound emitted in the numeric commands.

How to use buttons

Numeric commands: When setting AIBO to the autonomous mode



Single sound commands: When setting AIBO to the autonomous mode



Motion modes in general

To	For the numeric commands, press	For the single sound commands, press
Set AIBO to the autonomous mode (Page 50)	00 → SEND	CDE
Set AIBO to the game mode (Page 66)	01 → SEND	CED
Set AIBO to the performance mode (Page 62)	02 → SEND	ECD
Set AIBO to the "charging posture" (Page 37)	03 → SEND	EDC
Set AIBO to the command type A	81 → SEND	GCD
Set AIBO to the command type B	83 → SEND	GDC
Lower the volume one level (Page 79)	84 → SEND	CGD
Raise the volume one level (Page 79)	86 → SEND	CDG
Set AIBO to the sleep8 mode (Page 40)	88 → SEND	DEC
Set AIBO to the sleep mode (Page 40)	89 → SEND	DCE
*** Match AIBO's command type to that of the sound controller (Page 35)**	80 → SEND	

Performance mode (See pages 62 to 64)

To	For the numeric commands, press	For the single sound commands, press
Stand up	11 → SEND	CD#G
Sit down	12 → SEND	CGD#
Lay down	13 → SEND	GD#C
Show style 1	31 → SEND	CEF
Show style 2	32 → SEND	CFE
Show style 3	33 → SEND	FCE
Show style 4	34 → SEND	FEC
Show performance 1	41 → SEND	CFG
Show performance 2	42 → SEND	CGF
Show performance 3	43 → SEND	GCF
Show performance 4	44 → SEND	GFC
Show performance 5	45 → SEND	FCG

Game mode (See page 67)

To	For the numeric commands, press	For the single sound commands, press
Move forward	52 → SEND	CDF
Stop	55 → SEND	D#CF
Move backward	58 → SEND	CFD
Kick with the left foot	51 → SEND	DFC
Kick with the right foot	53 → SEND	DCF
Turn to the left	54 → SEND	FDC
Turn to the right	56 → SEND	FCD
Turn the ball tracking function on/off	50 → SEND	D#FC
Pose of triumph	5# → SEND	CD#F
Pose of vexation	5✳ → SEND	CFD#
Pick up an object	57 → SEND	FCD#
Release an object	59 → SEND	FD#C

Game commands

How to use the button

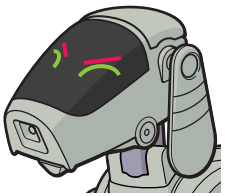
Example: “Move forward.”

Game mode (See page 67)

To	Press
Move forward	⬆ (2)
Stop	■ (5)
Move backward	⬇ (8)
Kick with the left foot	(1)
Kick with the right foot	(3)
Turn to the left	(4)
Turn to the right	(6)
Hold an object	PICK UP (7)
Release an object	RELEASE (9)
Turn the ball tracking function on/off	TRACK (0)
Pose of triumph	WIN (#)
Pose of vexation	LOSE (*)

List of lights/indicators

Lights on AIBO



Eye lights

The eye lights indicate AIBO's current mood and command type.

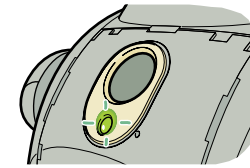
Color	Lights	AIBO's condition
	Off (Lights up depending on its emotion)	Autonomous mode (page 50)
Green	Flashing slowly	Charging posture (page 38)
Green	Flashing two times	Performance mode (page 62)
Green	Flashing	Game mode (Command type A) (page 70)
Red	Flashing	Game mode (Command type B) (page 70)
Red and green	Flashing rapidly simultaneously	Internal trouble (page 87)

In the autonomous mode

Color	Lights	AIBO's emotion
	Off	Normal state
Green	On	Joy (page 59)
Red	On	Anger (page 59)
Red and green	Lighting up alternately	Surprise (page 59)

Chest light

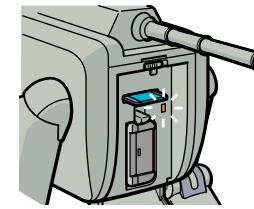
The chest light indicates AIBO's states of activity.
It also indicates AIBO's internal trouble together with the sound and eye lights.



Light	AIBO's condition	Notes
On	In motion	
Flashing slowly	Sleeping	To wake AIBO up, gently shake it. (page 41)
Flashing	Charging posture	AIBO may be saving its activities on the "Memory Stick." Do not replace the battery pack until the light goes out. (page 76).
Off	Pause	When the pause button is pressed down, you can replace the battery pack (see page 76). If the light is off even when the pause button is released, place AIBO on the station or replace the battery.
Flashing rapidly	Internal trouble	For details, see page 86.

Access light for "Memory Stick"

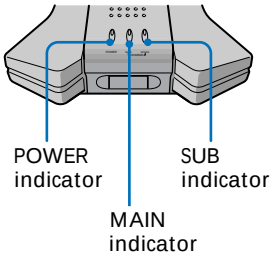
The access light indicates that AIBO is loading / saving the data of its activities on the "Memory Stick."



Light	Condition of the "Memory Stick"	Notes
On	Loading / saving data	Do not remove the "Memory Stick" or the battery pack until the chest light and access light go out.

Indicators on the station

You can check the power of the station and the charging status of the batteries.



POWER indicator

Indicator	Condition
On	Power on (page 74)
Off	Power off

MAIN indicator

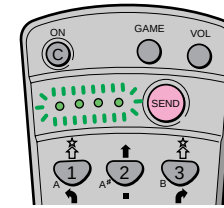
Indicator	Condition
On	Charging AIBO (page 75)
On	Charging completed
Flashing	Trouble (page 75)

SUB indicator

Indicator	Condition
On	Charging the extra battery pack (page 75)
On	Charging completed
Flashing	Trouble (page 75)

Lights on the sound controller

Four lights light up in two colors and indicate the operating commands and command type of the sound controller, and the status of inputting commands.



Lights		Operating commands/Condition	Command type
Off	○ ○ ○ ○	The power is off.	
On	● ● ● ●	Numeric commands / Power on (page 34)	(A)
	(● ● ● ●)		(B)
On	● ○ ○ ○	Single sound commands / Power on	(L)
	● ○ ○ ○		(H)
Flashing	✳ ✳ ✳ ✳	Game commands / Power on (page 69)	A
Flashing	✳ ✳ ✳ ✳	Game commands / Power on (page 69)	B
Each light brightens up in order.		Inputting or sending commands	

Limited warranty

SONY ELECTRONICS INC. (“SONY”) warrants this Product and its accessories against defects in material or workmanship as follows:

1. PRODUCTS: For a period of one (1) year from the date of purchase, SONY will, at its option, either repair or replace the defective parts and / or the Product (i.e., AIBO, station, sound controller and AC adapter) with new or rebuilt replacements. After this one (1) year period, you must pay all parts and labor charges.

2. ACCESSORIES: For a period of thirty (30) days from the date of purchase, SONY will, at its option, either repair or replace defective parts and / or accessories (i.e., lithium ion batteries, Memory Stick or CD-ROM media, adapters, etc.) with new or rebuilt replacements. After this thirty (30) day period, you must pay all parts and labor charges.

3. REPAIRS: For a period equal to the longer of (a) the remainder of the original limited warranty period on the original Product or accessory, or (b) for 90 days after the date of repair / replacement of Products or for 30 days after the date of repair / replacement of accessories, SONY will repair or replace defective parts, accessories and / or Products used in the repair or replacement of Products or accessories under this Limited Warranty with new or rebuilt replacements.

To obtain warranty service, you must first obtain an event number from AIBO Customer Link (see the next page). You will need to return the Product and all accessories to SONY in the original carton, using the original packaging materials. All supplied accessories must be returned with the Product except for the Memory Stick media, which contains data relating to your specific Product. SONY is not responsible for any damage during shipment arising from the failure to properly pack the Product or accessory being returned, or for the loss of any data contained on any media returned to SONY. For information on returning your Product or accessories for warranty repair, please contact the AIBO Customer Link.
This warranty does not cover customer instruction, installation or set up adjustments.

This warranty does not cover cost of removal or reinstallation, cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence of, or to any part of the Product. This warranty does not cover lost profits, lost sales, loss of use of the Product, or other consequential loss or damage due to improper operation or maintenance, installation, connection to improper voltage supply, or attempted repair by anyone other than a facility authorized by SONY to service the Product. This warranty does not cover Products sold AS IS or WITH ALL FAULTS, or consumables (such as fuses). This warranty does not apply when the malfunction results from use of the Product in conjunction with accessories, products or ancillary or peripheral equipment not manufactured by SONY, and where it is determined by SONY that there is no fault with the Product itself.

SONY will pay shipping charges for all in-warranty service. However, if no trouble is found with the Product or accessory, if the trouble is from a non-covered charge or if it is determined that the warranty period has expired, you will be billed for the cost of shipping and handling.

This warranty is valid only in the United States.

Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.

This warranty is invalid if the factory applied serial number has been altered or removed from the Product.

REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. SONY SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXCESS OR IMPLIED WARRANTY ON THIS PRODUCTS. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS LIMITED IN DURATION TO THE DURATION OF THIS WARRANTY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

For your convenience, SONY ELECTRONICS INC. has established telephone numbers for product information regarding the Entertainment Robot. Please call:

AIBO CUSTOMER LINK
1-800-427-2988

or write to:

support@aibosony.com

Other information about AIBO is also available on the internet site at:

www.world.sony.com / aibo

Service procedure

1. Contact the AIBO Customer Link. Its E-mail address is support@aibosony.com and its toll free number is 1-800-427-2988.

2. If the AIBO Customer Link determines that your unit needs repair, follow the procedure described below.

a. The AIBO Customer Link will give you the event number, which is valid for ten days.

b. Following the procedure described on the label attached to the box, put AIBO and the designated accessories into the original box. If you did not keep the original box, the AIBO Customer Link will send a new box to you free of charge within the warranty period. The actual shipping and material cost will be charged to you after the warranty period.

c. Mark your event number on the top of the box and send it to the designated address. The AIBO Customer Link will designate the shipping method and pay the shipping charges within the warranty period; after the warranty period, you must pre-pay the shipping charges.

d. As soon as the repair is completed, your AIBO will be sent back to you. After the warranty period has expired, the actual shipping cost will be charged to you together with the repair cost.

3. Please understand that the AIBO Customer Link only accepts credit cards for all the charges of repair, shipping and material after the warranty period has expired.

User registration

All users are registered based on information from the purchaser.
If a different person takes over this unit, please inform the "AIBO Customer Link" of the change.

Specifications

AIBO

Movable parts	Four legs Each leg: 3 degrees of freedom Head: 3 degrees of freedom Mouth: 1 degree of freedom Tail: 2 degrees of freedom
External storage	Memory Stick
Built-in capabilities	CCD color camera Stereo Microphone Speaker Thermometric sensor
Distance sensor	Infrared
Acceleration sensor	3 axes
Ventilation fan	DC fan
Power requirements	Lithium ion battery pack
Battery life	Approx. 1.5 hours (when in the autonomous mode)
Data back-up	Lithium battery (1)
Operating temperature	41° F to 95° F (5° C to 35° C)
Operating humidity	10 % to 80 % (not condensed) (hygrometer reading of less than 84°F (29°C))
Storage temperature	-4° F to 140° F (-20° C to 60° C)
Storage humidity	10 % to 90 % (not condensed) (hygrometer reading of less than 84°F (29°C))
Dimensions	Approx. $6\ 1/4 \times 10\ 1/2 \times 10\ 7/8$ inches (156 × 266 × 274 mm) (w / h / d, not including its tail)
Mass	Approx. 3 lb 8 oz (1.6 kg)

Station

Operating temperature	41° F to 95° F (5° C to 35° C)
Operating humidity	10 % to 80 % (not condensed)
Storage temperature	-4° F to 140° F (-20° C to 60° C)
Storage humidity	10 % to 90 % (not condensed)
Dimensions	Approx. $9\ 7/8 \times 4\ 1/8 \times 12\ 7/8$ inches (250.8 × 102.5 × 325.7 mm) (w / h / d)
Mass	Approx. 2 lb 6 oz (1,080 g)

Sound controller

Built-in capability	Speaker
Power requirements	Size AA (R6) batteries (2)
Battery life	Approx. 3 months
Operating temperature	41° F to 95° F (5° C to 35° C)
Operating humidity	10 % to 80 % (not condensed)
Storage temperature	-4° F to 140° F (-20° C to 60° C)
Storage humidity	10 % to 90 % (not condensed)
Dimensions	Approx. $2\ 7/8 \times 4\ 5/8 \times 1\ 5/16$ inches (70 × 116 × 33 mm) (w / h / d)
Mass	Approx. 5 oz (140 g) including the batteries

Battery pack

Output	7.2 V, 3,000 mAh
Charging time	Approx. 4 hours
Operating temperature	41° F to 95° F (5° C to 35° C)
Operating humidity	10 % to 80 % (not condensed)
Storage temperature	-4° F to 140° F (-20° C to 60° C)
Storage humidity	10 % to 90 % (not condensed)
Dimensions	Approx. $5\ 3/4 \times 1\ 9/16 \times\ 13/16$ inches (145 × 38.5 × 20.5 mm) (w / h / d)
Mass	Approx. 7 oz (200 g)

AC adapter

Input	120 V AC, 50 / 60 Hz
Power consumption	65 W
Output	19.5 V DC, 3.3 A
Operating temperature	41° F to 95° F (5° C to 35° C)
Operating humidity	10 % to 80 % (not condensed)
Storage temperature	-4° F to 140° F (-20° C to 60° C)
Storage humidity	10 % to 90 % (not condensed)
Dimensions	Approx. $5\ ^{1}/_{4} \times 2\ ^{3}/_{8} \times 1\ ^{3}/_{16}$ inches (133 × 58 × 29 mm) (w / h / d)
Mass	Approx. 12 oz (350 g)

Memory Stick

Storage	Flash memory, 8 MB
Operating temperature	32° F to 140° F (0° C to 60° C)
Voltage	2.7 - 3.6 V
Current consumption	Approx. 45 mA (operating) Approx. 130 µA (stand-by)
Maximum saving speed	1.5 Mbps
Maximum loading speed	2.45 Mbps
Dimensions	Approx. $^{7}/_{8} \times 2 \times {}^{1}/_{8}$ inches (21.5 × 50 × 2.8 mm) (w / h / d)
Mass	Approx. 0.1 oz (4 g)

Supplied accessories

Station (1)
Sound controller (1)
Ball (1)
Memory Stick (1) and case (1)
AC adapter (1)
ERA-110B lithium ion battery pack (2)
Size AA (R6) battery (2)
Documentation

Design and specifications are subject to change without notice.

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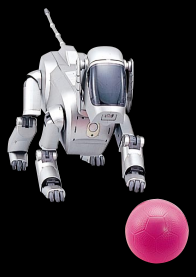

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